PHASE II STORM WATER MANAGEMENT PROGRAM ANNUAL REPORT

for January 1, 2007 - December 31, 2007

Permit No. MI0057364

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Acronyms

The following acronym list is provided as a resource for those reading this report.

BMP – Best Management Practice
BOH IM – Bureau of Highway Instructional Memorandum
CSS – Context Sensitive Solutions
DIT – Department of Information Technology
IDEP – Illicit Discharge Elimination Program
MDEQ – Michigan Department of Environmental Quality
MDOT – Michigan Department of Transportation
MEA – Municipal Enforcing Agency
MEP – Maximum Extent Practicable
MPO – Metropolitan Planning Organization
MS4 – Municipal Separate Storm Sewer System
NPDES – National Pollutant Discharge Elimination System
PIPP – Pollution Incident Prevention Plan
SESC – Soil Erosion and Sedimentation Control
SWMP – Storm Water Management Plan
TMDL – Total Maximum Daily Load
TSC – Transportation Service Center
UA – Urbanized Area

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Appendices

STATUS AT A GLANCE

Storm Water Management Plan Annual Report

IMPLEMENTATION TEAMS/TASKS 2007	Status	Schedule
MDOT Sponsored Education and Outreach		
1. Training attendance tracking	●	☼
2. Training review and updates	⊙	☼
3. Conference participation	●	☼
4. Article publication	●	☼
5. Annual progress report	●	☼
6. Storm water awareness survey	●	☼
7. General public education	●	☺
8. Public Web site administration	●	☼
Public Involvement & Participation		
1. Project early coordination process	●	☼
2. Total Maximum Daily Load (TMDL) review	●	☼
Illicit Discharge Elimination Program		
1. Monitor illicit discharges and follow up	●	☼
2. Illicit discharge notification and reporting training	●	☼
3. Dry weather screening at priority outfalls	⊙	☼
4. Legal authority for illicit discharge removal	●	☼
5. Dry weather screening outfall mapping	⊙	☼
6. Statewide outfall mapping	●	☼
7. Tracking new outfalls	⊙	🕘
8. Tap-in/Discharge permits tracking	●	☼
Post Construction for New Development and Redevelopment		
1. Post construction BMP maintenance guidelines	⊙	🕘
2. Post construction BMP field maintenance tracking	⊙	🕘
3. Post construction BMP selection and design procedure implementation	⊙	🕘
4. Post construction BMP selection and design training	⊙	🕘
5. Drainage Manual update	●	☼
6. Existing flow control structure review	●	☼
Pollution Prevention & Good Housekeeping		
1. PIPP audits	●	☼
2. Maintenance training	●	☼
3. Contract agency coordination (street maintenance activities)	⊙	🕘
4. Pesticide Applicator Program and fertilizer training	●	☺
5. Adopt-a-Highway Program	●	☺
Construction Site Runoff Management		
1. SESC Program and review process	●	☼
2. Part 91 and Part 31 training	●	☼
3. Outfall labeling	●	☼
4. Pollution prevention on construction sites	⊙	🕘

Status: Procedure/Program in Development = ⊙ Being Implemented = ●

Schedule: Ahead = ☺ On Schedule = ☼ Behind = 🕘

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Overview

Introduction

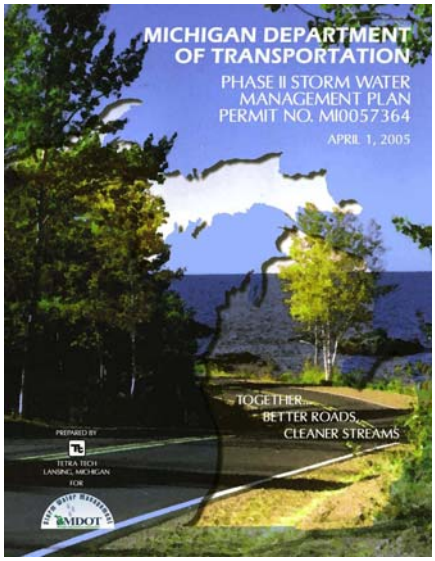
This Annual Report describes storm water pollution control activities implemented by MDOT over the past reporting period of January 1, 2007-December 31, 2007 to comply with reporting requirements described in the National Pollutant Discharge Elimination System (NPDES) Permit (No. MI0057364, hereinafter referred to as the Permit) issued by the Michigan Department of Environmental Quality (MDEQ). The Permit, which expires on April 1, 2009, is expected to be reissued in five year cycles thereafter.

The Permit directs MDOT to develop and implement a comprehensive Storm Water Management Program (SWMP) designed to reduce the discharge of pollutants from the MDOT drainage systems to the maximum extent practicable (MEP), protect the designated uses of the waters of the state, increase awareness of storm water as a potential source of pollutants, and satisfy the applicable state and federal water quality requirements.

Report Objectives

The objectives for this report are as follows:

- To inform MDOT Staff about SWMP activity accomplishments.
- To satisfy MDOT's annual reporting requirement of the Permit.
- To evaluate and assess the appropriateness and effectiveness of MDOT's SWMP.
- To present information about new programs, changes to current programs and procedures developed by MDOT.
- To document changes to MDOT's fiscal analysis and to summarize annual expenditures and budget information.



Report Organization

The annual report highlights actions MDOT completed or is working on to fulfill the Permit requirements during 2007 and also what activities it will focus on in 2008. The reported information is organized by the six implementation teams responsible for the completion of storm water-related activities. The activities of the teams closely follow the requirements of the six minimum measures of the Permit. The implementation teams include the following:

- MDOT-Sponsored Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Elimination Program (IDEP)
- Post Construction for New Development and Redevelopment
- Pollution Prevention and Good Housekeeping
- Construction Site Runoff Management

MS4 Committee

MDOT's Municipal Separate Storm Sewer System (MS4) Committee continues to meet on a quarterly basis to discuss progress of the program. Members of the MS4 Committee also serve as chairs of the implementation teams.

Program Assessment

Program assessment is primarily determined by the Storm Water Management Program's adherence to the activities and measurable goals committed to in the SWMP as well as regular evaluation of storm water-related procedures, training, and programs.

As MDOT's Storm Water Management Program undergoes development and implementation, care is taken to ensure that MDOT's commitments, as written in the SWMP, are fulfilled; however, as the program flourishes, it sometimes becomes evident that modifications need to be made to the original activity, the measurable goal, or both. For more detail regarding activities and schedules committed to in the SWMP, see Appendix A, *SWMP Activity Sheets*. Appendix A contains all of the activity sheets from Chapter 3, Plan Elements and Activities, of the SWMP. Each activity sheet denotes modifications to the activity's interim milestones and measurable goals and also indicates which interim milestones and measurable goals have been completed.

Overall, MDOT is on schedule for fulfilling their commitments and the intent of their commitments by the end of the 5-year permit cycle on April 1, 2009. MDOT's vision is to have its Storm Water Management Program be incorporated into the daily activities of the Department

with the storm water-related procedures compiled into a Storm Water Management Manual.

As most of the original procedure-related activities and measurable goals are now developed and being implemented, revised activities and measurable goals were drafted in 2007 by each implementation team and are included in their respective section below. It is anticipated that these revised activities and measurable goals will be incorporated into the revised Storm Water Management Plan during the next permit cycle. The original activities are either obsolete, as have been reported on in annual reports, or are included under the appropriate minimum measure as on-going activities.

Revised Fiscal Analysis

No revisions were made to the fiscal analysis for this reporting period.

Annual Budget

Table 1 provides a summary of MDOT's past annual expenditures and estimated expenditures for fiscal year 2008. The fiscal year is from October 1st through September 30th of each year. Finalized budget information is also provided for FY 2007. The FY 2008 estimated budget will be updated in the next Annual Report.

Table 1 Annual Storm Water Management Program Expenditure and Budget

Fiscal Year	Annual Expenditure
FY 1999	$142,111
FY 2000	$1,017,346
FY 2001	$764,142
FY 2002	$638,881
FY 2003	$508,123
FY 2004	$395,837
FY 2005	$372,372
FY 2006	$477,000
FY 2007	$429,000
FY 2008*	$500,000

** Budgeted amount for FY 2008.*

MDOT-Sponsored Education and Outreach

Objective

To spread awareness of MDOT's Storm Water Management Program to MDOT staff, contractors, and the traveling public and to train MDOT staff and contractors on job-related expectations.

Training

The MDOT storm water training program for 2007 focused on the Early Coordination for Post Construction Best Management Practices procedure. MDOT's Aquatic Resource Specialist traveled to each Transportation Service Center statewide to introduce the new procedure to the region design staff. Staff were expected to begin implementation of the procedure in 2007.

Targeting maintenance garage staff, MDOT purchased several copies of Excal Visual's Storm Water Pollution Prevention training videos. Maintenance supervisors are expected to request the video to conduct training within their region.

In addition to the early coordination training, 2007 training also included IDEP training, soil erosion and sedimentation control training, and pesticide applicator training. The following details these trainings:

- IDEP Module Training
  - March 7, 2007, Superior Region (12 attendees)
  - Marshall TSC May 8, 2007, Southwest Region (17 attendees)
  - Lead Workers Meeting May 16, 2007, Southwest Region (32 attendees)
- MDOT Pesticide/Certification Training April 11-12, 2007 (76 attendees)
- Early Coordination Procedure lectures to Regions Winter/Spring 2007-All Regions
- SESC Procedures Training Hastings Maintenance Garage, SW Region August 9, 2007 (6 attendees)

Public Presentations

MDOT also provided storm water educational materials and applicable display boards as handouts and exhibits, respectively, at various conferences and public events. The following summarizes these opportunities: (For more information see Appendix B, *MDOT-Sponsored Education and Outreach*.)

Oral Presentations

- MDOT/American Council of Engineering Companies (ACEC) Partnering Conference February 1, 2007

Display Exhibits & Handouts

- Annual Asphalt Paving Conference and Equipment Show, DeVos Place Grand Rapids February 7-8, 2007
- Wayne County Public Libraries 2007-2008
- 5th Annual Earth Fair (St. Clair Drain Commission) April 13-14, 2007
- SESC Pocket Guide/Posters for Purchase October 1, 2007

Storm Water Educational Materials

New storm water educational materials were developed in 2007 to increase awareness of MDOT's storm water program to MDOT staff AND contractors. As the targeted audiences become more aware of the program, it is MDOT's goal to transition that awareness to knowledge of expected participation in the storm water program, and then to behavior that supports the storm water program. This transition is expected to occur over many years.

The following materials were created in 2007 and were distributed at conferences, public events, and through existing industry newsletters. (For more details see Appendix B.)

- Soil Erosion and Sedimentation Control & Pollution Prevention Pocket Guide, January 2007
- Local Technical Assistance Program (LTAP), The Bridge publication, "Maintenance Garage Pollution Prevention article-Part 1 and Part 2" Winter 2007
- Early Coordination Procedure article in MDOT Topics Newsletter, April 2007
- Michigan Infrastructure and Transportation Association (MITA) Cross-Section publication, "Pre-Construction Activities-Soil Erosion and Sedimentation Control", Spring 2007

- Michigan Concrete Association, "Ready Mix Plant" article, Summer 2007
- LTAP, The Bridge publication, "MDOT's support of post construction BMPs" Fall 2007

Other Agencies Borrowing MDOT Material

With many of the educational materials being posted on the MDOT Storm Water Public Web Page, MDOT has received several requests from other public agencies to use MDOT educational materials for their own reprinting and distribution. MDOT encourages usage of these materials and supplies the native graphic files when requested. The following is a list of agencies requesting to use MDOT materials:

- Shelby Township, Tennessee
  Storm Water Flyer for Kids, Litterbags
- Hudson, Ohio
  IDEP Interactive Demo
- Warren County, Ohio
  Storm Water Flyer for Kids
- Henry County Storm Water Program, Georgia
  CD of various materials
- Niles, Illinois
  IDEP Brochures
- West Virginia Local Technical Assistance Program
  Permission to Print

MDOT Storm Water Public Web Page

http://www.michigan.gov/stormwatermgt

The MDOT Storm Water Public Web Page is part of MDOT's Public Web Site and is updated on a quarterly basis. The page is dedicated to Phase II storm water information and provides a means for MDOT staff, contractors, and the traveling public to view and download MDOT's storm water materials, including reports and educational materials, and to link to other storm water-related Web sites. New information downloaded to the Web page this year includes the following:

- MDOT-authored industry newsletter articles
- Revised IDEP Training Module
- Soil Erosion and Sedimentation Control & Pollution Prevention Pocket Guide- PDF file
- MDOT Storm Water Annual Report, 2006

Documentation of the number of Web page visits and downloads is located in Appendix B.

Storm Water-Related Committees

The MDOT Storm Water Program Manager is involved with the following outside committees:

- Southeast Michigan Council of Governments (SEMCOG) LID Manual Committee
- Transportation Research Board, National Cooperative Highway Research Program (NCHRP) Committee for Evaluating and Selecting Modifications to Existing Roadway Drainage Infrastructure to Improve Water Quality in Ultra-Urban Areas

Focus for 2008

The education/outreach focus for 2008 is to continue to broaden the storm water training effort through conference discussions and training, specifically targeting roadway designers on post-construction storm water best management practice design considerations.

Upcoming education and training activities:

- MDOT Design Conference
- MDOT Maintenance Conference
- Post Construction BMP Training for applicable staff at the Transportation Service Centers
- Follow-Up Storm Water Awareness Survey

Measurable Goals & Assessment

See Appendix A, Activities E-2, E-3, E-4, E-6, T-1, T-2, T-3, and T-4 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Following the submittal of this report, these activities will no longer be reported on in the activity sheet format. Instead, they have been revised into a table format under one of the six minimum measures. Table 2 shows the activities associated with Public Education. Henceforth, training activities will no longer be reported under Public Education but rather under the minimum measure most applicable.

MDOT Program Element: Public Education

Priority Issues/Pollutants of Concern: Litter

Pollution Sources: Traveling public within Michigan

Table 2 Public Education Activities

Activity Number	Activity	Program Goal	Measurable Goal	Timeframe	Assessment Method
PE-1	Litter Pick-Up	Minimize discharge of pollutants to waterbodies from roadways, ROW, and parking lots.	Promote the MDOT Adopt-a-Highway program through signage and flyers.	By December 2008	Document number of adopt-a-highway stretches annually.
PE-2	Public Storm Water Web Site (E-3)	Provide storm water information to MDOT staff, traveling public, and other government agencies.	Review and update the Web site semi-annually.	On-going	Track the number of Web site visitors and the number of downloads of key documents.
PE-3	Public Appearances (E-2)	Provide storm water information to the traveling public and other government agencies.	Provide MDOT storm water information such as litter bags, poster displays, etc. to agencies requesting the information.	On-going	Track the number of public appearances of MDOT information.

Public Involvement and Participation

Objective

To coordinate early planning of MDOT projects with local watershed organizations (Context Sensitive Solutions) and the Michigan Department of Environmental Quality (MDEQ) on environmental aspects.

Early Coordination Procedure

In 2007, there were no projects which triggered the early coordination procedure.

Early Coordination Database

As was reported last year, an early coordination database was being planned with the Department of Information Technology (DIT). Over the course of many discussions in 2007, it was determined that the original vision for the database is not possible. A simplified database is still being discussed but in the meantime, the Aquatic Resource Specialist within the Bureau of Transportation Planning Environmental Section will manually record the status of applicable projects.

Topics Newsletter

The April 2007 issue of "Topics - Transportation Planning Issues and Communications Series," published an article on the early coordination procedure entitled, "Early coordination with MDEQ Water Bureau part of Storm Water Management Plan." The article discussed the early coordination procedure and how it fits in with MDOT's Storm Water Management Plan. See Appendix C for a copy of the article.

Projects Affecting Waterways with Total Maximum Daily Loads

In 2007, three projects were reviewed for water quality concerns that may affect water bodies listed in the MDEQ 303 (d), 305(b), and 314 Integrated Report. The projects include the following:

- M-20 Bridge over the Tittabawassee River, Midland County, Bay Region
- US-23/I-96 interchange to US-23/M-14 interchange, Livingston/Washtenaw Counties, University Region, Horseshoe Drain and Whitmore Lake
- M-311 from Burlington to the Kalamazoo River, Calhoun County, Southwest Region, Kalamazoo River and Crooked Creek

Watershed Group Meetings

To help facilitate project coordination between MDOT and local watershed and environmental groups, region staff attend local watershed/environmental group meetings when appropriate and when possible. In addition, the MDOT Storm Water Program Manager receives and reviews meetings minutes from 15 to 20 watershed groups to ensure proper MDOT coordination when possible. The following are some of the watershed group meetings attended in 2007:

- Grayling Area (North Region)
- Livingston County (University Region)
- Macatawa Area Coordinating Council and the Macatawa Watershed Project
- Muskegon River Watershed Assembly

Alliance of Rouge Communities Meetings

The Alliance of Rouge Communities (ARC) is a voluntary public watershed entity currently comprised of 39 municipal governments and two counties (Wayne County and Washtenaw County). The ARC members represent public agencies with water management responsibilities whose jurisdictional boundaries are totally or in part located within the Rouge River watershed located in southeast Michigan. As a stakeholder in the Rouge River watershed, MDOT attends the biannual Full Alliance meetings to keep updated on watershed happenings and to ensure appropriate coordination of MDOT and ARC activities.

Focus for 2008

- Continue implementing the early coordination procedure for the first group of projects
- Continue attending watershed meetings
- Develop map integrating early coordination locations and MDOT projects

Measurable Goals & Assessment

See Appendix A, Activities C-2, C-4 and C-5, to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Following the submittal of this report, these activities will no longer be reported on in the activity sheet format. Instead, they have been revised into a table format under one of the six minimum measures. Table 3 shows the activities associated with Public Involvement and Participation.

MDOT Program Element: Public Involvement and Participation

Priority Issues/Pollutants of Concern: Sediment, Hydrocarbons

Pollution Sources: Roads

Table 3 Public Involvement and Participation Activities

Activity Number	Activity	Program Goal	Measurable Goal	Timeframe	Assessment Method
PIP-1	Training (T-1, C-4)	Involve MDEQ-Water Bureau on all projects triggering the early coordination process.	Train 100% of appropriate region/TSC staff on completing the early coordination process.	By December 2008	Document those trained.
PIP-2	Watershed Group and MPO Involvement (C-2)	Invite watershed groups and MPOs to provide input on projects.	Distribute letters to MPOs and watershed groups inviting them to contact MDOT for input on projects using MDOT's 5-year plan.	Once every permit cycle	Compare watershed group involvement from year to year.
PIP-3	Meet Responsibilities Established by TMDLs (C-5)	Address projects which affect water bodies with TMDLs. Reduce pollutant loads as required.	Incorporate controls to address the pollutant of concern on 100% of projects affecting water bodies with a TMDL.	On-going	Document projects affecting TMDLs. Estimate theoretical pollutant load reductions.
PIP-4	Conduct Early Coordination on Applicable Projects (C-4)	Involve MDEQ-Water Bureau on all projects triggering the early coordination process.	● Develop method to identify early coordination trigger locations.	By December 2008	Document that method has been completed. Document the status of projects that trigger early coordination.
			● Notify MDEQ of 100% of the projects which are triggered by the early coordination procedure.	On-going	Document that early coordination procedure has been followed for each applicable project.

Illicit Discharge Elimination Program

Objective

To effectively implement MDOT's approved Illicit Discharge Elimination Program including dry weather screening of priority outfalls and a procedure for accepting and following through with reported illicit discharges/connections.

Dry Weather Screening

Initial dry weather screening of 128 priority road-stream crossings over impaired water bodies, as set forth in the SWMP, was completed in 2007. Three hundred and ninety-three (393) outfalls were identified at these crossings and 389 of them were ruled as having no apparent illicit connections. The four remaining outfalls are pending further investigation as follows: (See Appendix D, *Illicit Discharge Elimination Program*, for investigation maps saved on a CD-ROM.)

- 1 needs to be cleared of sediment (Bay Region)
- 1 needs to be tracked upstream (Metro Region)
- 3 need letters sent to appropriate businesses and/or local agencies to continue illicit confirmation work as illicit connections are located outside of the MDOT right-of-way (ROW) (Metro Region)

More details regarding dry weather screening investigations, such as sample analysis results and upstream tracking, are located in MDOT's dry weather screening database.

Reported Illicit Discharges

In addition to illicit discharges found during dry weather screening, illicit discharges were found by MDOT staff or outside sources and reported to MDOT. The status of these reports is as follows: (See Appendix D for reported discharges.)

- September 5, 2006 – Pipe entering ditch with black discharge and odor. – *Resolved* (Southwest Region)
- December 22, 2006 – I-94BL Maintenance crews observed oily residue during culvert cleanout. – *Resolved* (Southwest Region)
- August 1, 2007 – On US-12 during ditch cleanout operations black water with a sewage smell. – *Unresolved* (Southwest Region)
- August 1, 2007 – An unknown pipe discharging into ditch on US-12. – *Resolved* (Southwest Region)
- August 7, 2007 – Old US 31 adjacent property owner on the west side of Old US 31 complained to garage staff that during sewage overflow events sewage flows into catch basin that leads to MDOT ditch. Also stated that laundry room discharges to catch basin. – *Resolved* (Southwest Region)
- August 10, 2007 – On I-94 Maintenance crews smelled strong diesel fuel odor when preparing to clean out ditch. – *Resolved* (Southwest Region)
- December 27, 2007 –City of Hastings at the Thornapple River and M-43 Road Crossing, MDOT staff identified dry weather flow that was grayish in color. Consultant has investigated the dry weather flow, sampled and is tracking the source upstream. – *Unresolved* (Southwest Region)

Legal Authority for Illicit Discharge/Connection Removal

There has been no change to MDOT's legal authority requiring illicit discharges/connections be removed from its drainage system.

Statewide Outfall Mapping

As required by MDOT's Storm Water Phase II NPDES Permit, MDOT has developed a statewide outfall map, using Geographic Information System (GIS) software, showing the locations of known MDOT outfalls. The outfalls were located based on 1) design-survey data and 2) GPS coordinates from the dry weather screening effort. The map is posted on the MDOT Storm Water Public Web Page and is organized by region and county. The map link is located on the "illicit discharge" page. The maps will be updated annually with the latest information and will continue to be posted on the Web site. It is the intent of MDOT to expand on these maps in coordination with the MDOT Asset Management group, which has an interest in the attributes of the outfalls as well. See Appendix D for copies of the maps saved on a CD-ROM.

Tap-in/Discharge Permit

MDOT distributes storm water educational material with its tap-in/discharge permit application. Entities requesting to tap-in/discharge to MDOT's drainage system are required to obtain a permit. In 2007, 31permit applications with educational information were distributed.

Outfall Labeling

MDOT has a special provision for labeling newly constructed storm water outfalls that discharge directly to the waters of the state from the MDOT drainage system. For outfalls labeled in 2007, see Appendix D. Note that in the future, these outfalls will be included on the statewide outfall map once the procedure for doing so is established.

Focus for 2008

The IDEP focus for 2008 is to continue to train field staff on their role in identifying and reporting illicit discharges/connections and to continue to accept and follow-up on reported illicit discharges/connections. Reported illicit discharge complaints will be recorded in the IDEP Reporting Database within each region.

Upcoming IDEP activities:

- Section 9.13, *Illicit Discharges into MDOT Storm Water Drainage Systems*, of the Construction Permit Manual will be revised and reissued.
- In coordination with the TSCs, a procedure will be developed to provide coordinates of each newly labeled outfall so that it can be included on the statewide outfall map.
- The Design-Survey group will finalize the procedure to properly code and report outfalls found during survey operations.

Measurable Goals & Assessment

See Appendix A, Activities I-1, I-2, I-3, I-4, I-5, and C-10, to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Following the submittal of this report, these activities will no longer be reported on in the activity sheet format. Instead, they have been revised into a table format under one of the six minimum measures. Table 4 shows the activities associated with the Illicit Discharge Elimination Program.

MDOT Program Element: Illicit Discharge Elimination Program

Priority Issues/Pollutants of Concern: Hydrocarbons, *Escherichia coli*, Detergents

Pollution Sources: Outside MDOT Right-of-Way (ROW), Within MDOT ROW

Table 4 Illicit Discharge Elimination Program Activities

Activity Number	Activity	Program Goal	Measurable Goal	Timeframe	Assessment Method
IDEP-1	Outfall Labeling and Mapping (C-10)	Identify MDOT's outfalls on a map and in the field.	● Use the Special Provision for Labeling Storm Water Outfalls on all projects with an outfall as defined in BOH IM 2005-03, *Labeling Storm Water Outfalls*, . ● Document the coordinates of the outfall location for all projects with an outfall as defined in BOH IM 2005-03, *Labeling Storm Water Outfalls*.	On-going	Document that new outfalls were checked for applicability as noted on checklist.
				By December 2008	Confirm that labeled outfalls are mapped.
IDEP-2	Dry weather screening (I-2)	Minimize discharge of pollutants to waterbodies from the MDOT drainage system.	Follow Section 9.13, *Illicit Discharges into MDOT Storm Water Drainage Systems*, of the Construction Permit Manual for outfalls at which the dry weather screening program confirms a pollutant discharge.	On-going	Track outfall correspondence and inspections in the IDEP reporting database.
IDEP-3	Reported Illicit Discharges and Follow-Up (I-3)	Minimize discharge of pollutants to waterbodies from the MDOT drainage system.	Follow Section 9.13, *Illicit Discharges into MDOT Storm Water Drainage Systems*, of the Construction Permit Manual for reported illicit discharges/ connections.	On-going	Track outfall correspondence and inspections in the IDEP reporting database.

Activity Number	Activity	Program Goal	Measurable Goal	Timeframe	Assessment Method
IDEP-4	Tap-In Permits (E-4)	Minimize discharge of pollutants to waterbodies from the MDOT drainage system.	● Review educational materials for relevance and update as appropriate.	Annually	Document any changes to educational materials.
			● Provide illicit discharge educational material to all permit applicants applying to discharge to the MDOT drainage system.	On-going	Track number of permit applications distributed.
IDEP-5	Training (T-1)	Minimize discharge of pollutants to waterbodies from the MDOT drainage system.	● Inform appropriate staff annually on how to recognize and report illicit discharges/connections.	On-going	Document those trained.
			● Inform appropriate staff annually that outfalls need to be labeled and located with a coordinate.	On-going	Inspections
			● Inform appropriate permit staff annually that educational materials need to be included with the tap-in permit application.	On-going	Incorporate educational materials into permit application.
IDEP-6	Maintenance Garage Catch Basin Labeling	Minimize discharge of pollutants to waterbodies from MDOT Maintenance Garages.	Install catch basin labels on an impervious surface at 100% of the maintenance garages statewide.	By December 2011	Include with annual maintenance inspections.

Post Construction for New Development and Redevelopment

Objective

To determine and implement the procedure for choosing post construction storm water BMPs, which may be structural, vegetative, or operational, as appropriate. The procedure includes coordination between environmental, design, construction, and maintenance staff early in project planning.

Drainage Manual

Minor revisions to the MDOT Drainage Manual were made in 2007. An updated copy is posted on the MDOT Public Web Site.

Post Construction BMP Baseline Inspection Pilot Study

In 2007, a post construction BMP baseline inspection pilot study was initiated to develop a procedure for locating and inspecting existing post construction BMPs for maintenance needs and water quality benefits. The pilot study included the inspection of six existing BMP structures. Maintenance recommendations and drawings were generated showing the current condition of each site. A reporting format and a maintenance checklist were also developed to standardize the maintenance inspections. Each inspected BMP is also mapped with a coordinate.

As a result of this study, the baseline inspections will continue statewide with the goal of visiting all known post construction BMPs within five years.

Traverse City Partnership

MDOT assisted the Watershed Center Grand Traverse Bay and the City of Traverse City in funding several pollution prevention and stream bank erosion control projects around Traverse City. Improvements at Hannah Park, the downtown Farmers Market, and three storm water outfalls to Grand Traverse Bay were made in 2007. Funding for the projects is a collaborative effort among several partners including funds from three grants awarded to The Watershed Center from the Michigan Department of Environmental Quality (MDEQ). In addition to MDOT and MDEQ grant funding, funding is being provided by the City of Traverse City, the Traverse City Auto Parking System, and the Downtown Development Authority.

Native Planting Demonstration Projects

MDOT has been awarded transportation enhancement funding for two native planting/water quality demonstration projects along two Michigan roads. One project is located at the I-69/I-94 interchange and the other is located at the Alger Rest Area along SB I-75 in Bay Region.

Research suggests that one benefit of using native plants versus traditional roadside vegetation is that the native plants in combination with uncompacted soil will reduce storm water runoff to the waters of the state. The native plants reduce discharge through their extensive root system, which promotes infiltration and evapotranspiration, and through their adaptability to the Michigan environment. MDOT will also be looking at maintenance requirements associated with these projects.

Post Construction BMP Recommendations

MDOT reviews all projects for their affect on water quality. In 2007, 323 categorical exclusion projects and five major action projects [those requiring an Environmental Assessment (EA) or a Final Environmental Impact Statement (FEIS)] were reviewed. Table 5 shows a breakdown of the number of categorical exclusion projects reviewed in each region in 2007.

Table 5 Reviewed Categorical Exclusion Projects

Region	No. of Projects	% of Total Projects
Grand	76	24
University	59	18
Bay	45	14
Southwest	43	13
Metro	37	11
North	34	11
Superior	29	9
Total	**323**	**100**

The major action projects and their status are as follows:

- US-127 - *FEIS Re-evaluation*
- US-32 BS - *EA*
- I-75 Bay Region - *EA*
- Detroit International Freight Terminal (DIFT) - *FEIS*
- Detroit River International Crossing (DRIC) - *FEIS*

Most project reviews result in general water quality recommendations such as retaining existing open drainage where possible, avoiding tree removals within 25 feet of water bodies, and reducing runoff velocities where possible. In some cases, project reviews result in specific water quality recommendations. A sample of categorical exclusion projects receiving specific recommendations is included below: (See Appendix E for more recommendation summaries.)

M-20, Flinton Creek, Muskegon County, Grand Region

Flinton Creek is part of the White River Natural River System and is a cold water trout stream. Due to road widening, the stream was shifted several feet to the south. The new channel was designed to contain a 100-year flood and a low flow shelf was included to insure adequate water depth during low flow. Once the channel dimensions were set, it was decided that natural fieldstone riprap, native seed mixes, and trees would be used to stabilize the bank. Post construction BMPs include sheet flow runoff from the roadway intercepted by vegetated buffers and directed to the stream through vegetated roadside ditches. Roadside slopes where runoff flows are concentrated will be protected by riprap spillways.

US-2 over the Escanaba River, Delta County, Superior Region

It was recommended that storm water runoff from the bridge should outlet as far back from the river's edge as possible and allow to flow through at least 200 feet of vegetation prior to discharging to the river. Discharge velocities should be reduced as much as possible and direct discharge into the river should be eliminated if possible.

Mid-Michigan Railroad ROW Acquisition for Path along Tributary to Grand River, Kent County, Grand Region

Stream along this path is designated by DNR as a trout stream. Culvert, bridge, and riprap placement must allow for fish passage. Design should include construction and post construction BMP placement to control erosion and prevent sedimentation. Any tree removal within 25 feet of stream should include plans to replace the trees to protect water temperature. Work will be restricted to certain dates to protect fisheries.

M-50 over the Pratt Drain, Eaton County, University Region

The Pratt Drain is a tributary to Sebewa Creek which is a designated trout stream. Long term negative impacts to the fisheries may result when the stream is relocated and a new culvert is installed unless BMP recommendations are followed. Removal of vegetation should be minimized and disruption of the downstream wetland and channel should be minimized. Restoration of the newly constructed riparian area should include native plantings. If riprap is to be placed in the bottom of the new channel, it should be limited to the area adjacent to the culvert apron and covered with smaller stone.

US-127 from south Blanchard Rd interchange to south of Shepherd Rd, Little Salt River, Isabella County, Bay Region

Preliminary Scoping

Since the entire project location is within the Village of Shepherd's source water protection area, improper storm water discharge has the potential to affect the city's drinking water supply. If the project scope includes road or shoulder widening, new drainage enclosures, upsizing storm sewers, direct discharge to surface water bodies, or installation of extensive new curb and gutter, then storm water BMPs must be put into place. New drainage enclosures and direct discharge of storm water into rivers and streams must be avoided if possible.

I-94 from Allington south to Gratiot Interchange, storm sewer outlets into Pine River, Shoulder Widening, Culvert Replacement, Riprap, St Clair County, Metro Region, Pine River/Drains

Storm water outlets at the Pine River will be reconstructed. Proposed design includes decreasing the slope of the pipe and adding a drop structure to decrease discharge velocity. Outlets will be located the maximum distance from the waters edge to reduce discharge velocities as much as possible and allow the discharge to flow through vegetation or riprap before entering the water body.

I-375/M10 (Jefferson Ave), Detroit River, Wayne County, Metro region

Preliminary Scoping

Any impacts to water quality including increases in impervious surface area, upsizing storm sewer pipe, new drainage enclosures, and/or direct discharges must be mitigated. The use of detention or retention ponds, infiltration basins, vegetative swales, rain gardens, hydrodynamic separator devices, or in-line detention alone or incorporated into a treatment chain are to be considered. There are LUST sites adjacent to the project. If cuts for utility or storm sewer occur during the project, measures must be taken to locate and contain any contaminated groundwater that is encountered. This includes determining the depth of shallow groundwater, appropriately abandoning all groundwater monitoring wells, using appropriate backfill where shallow contaminated groundwater is encountered and proper disposal of contaminated media.

Ramp Construction SW Quadrant I-94/Columbia Interchange, Calhoun County, Southwest Region, Tributaries to Harts Lake

Preliminary Scoping

If the project includes road or shoulder widening, enclosing additional drains, upsizing storm sewer, or installation of new curb and gutter, then detention/retention ponds, infiltration basins or trenches, or vegetated swales should be considered. Additional drain enclosures and direct discharge of storm water into rivers or streams should be avoided.

Reconstruct, Driveways, Drainage, Sidewalks, Ditching, etc. Oakland County, Metro Region, Gibson Drain

Preliminary Scoping

The Gibson Drain contains warm water fish communities. No work dates (March 1 through May 31) must be observed. BMPs such as detention or retention basins, infiltration basins, and vegetated swales should be considered where storm water enters the waters of the state. Additional drain enclosures and direct discharge of storm water to streams must be avoided.

Post Construction BMP Maintenance

As new post construction storm water BMPs are evaluated and approved by MDOT for regular use, a Maintenance Performance Guide will be developed. In 2008, maintenance performance guides will be developed for the approved post construction BMPs listed in the Drainage Manual. The guidance will be based on the existing maintenance guideline written in the Drainage Manual. These maintenance performance guides are to be used by maintenance staff.

List of Post Construction BMPs

A list of post construction BMPs is being updated to help track the location and purpose of each MDOT post construction storm water BMP. See Appendix E for a copy of the list to date. There are 87 structures currently listed many of which will be inspected over the next five years as part of the baseline inspection effort. Each MDOT region is asked to review and add to the current list of BMPs periodically as they become aware of existing BMP sites or new BMP sites are constructed.

Transportation Enhancement Fund Projects

MDOT manages the federal Transportation Enhancement Funds for Michigan and encourages grant applicants to include a water quality benefit within their project. Constructed Transportation Enhancement Fund projects in 2007 with a noted water quality benefit include the following:

- Manistee County culvert replacement and stream stabilization.

Focus for 2008

The Post Construction Storm Water focus for 2008 is to train roadway design staff on selecting and applying post construction storm water management BMPs into their design projects.

Upcoming Post Construction Storm Water activities:

- MDOT Design Conference – cost-effective post construction storm water BMP presentation, June 2008
- Updating the existing Post Construction Storm Water BMP Training Module
- Post construction storm water BMP inspections
- Developing Maintenance Performance Guides for maintenance of approved post construction storm water BMPs.
- Coordination with West Grand Neighborhood Organization and Roosevelt Park Neighborhood Association (Grand Rapids) Turner Gateway rain garden project

Measurable Goals & Assessment

See Appendix A, Activities C-1, C-3, C-6, C-8, and C-11 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Following the submittal of this report, these activities will no longer be reported on in the activity sheet format. Instead, they have been revised into a table format under one of the six minimum measures. Table 6 shows the activities associated with the Post Construction Storm Water Management Program.

MDOT Program Element: Post Construction for New Development and Redevelopment (4R Projects)

Priority Issues/Pollutants of Concern: Sediment, Hydrocarbons

Pollution Sources: Roads

Table 6 Post Construction for New Development and Redevelopment Activities

Activity Number	Activity	Program Goal	Measurable Goal	Timeframe	Assessment Method
PC-1	Training (T-1)	Consider storm water runoff controls on projects.	● Inform 100% of appropriate region design staff on how to select post construction BMPs. ● Inform100% of appropriate region maintenance staff on how to maintain post construction BMPs based on the maintenance performance guides.	By December 2009 By December 2009	Document those trained. Survey: Pre-training quiz results and post-training quiz results
PC-2	Post Construction BMP Baseline Inspections and Review for Water Quality Benefit (C-11)	Inspect all of MDOT's known post construction BMPs for overall maintenance needs and possible water quality benefit retrofits.	Inspect 20% of MDOT's known post construction BMPs (not swales or catch basin sumps) each year for five years.	By December 2012	Confirm inspections annually.
PC-3	Post Construction BMP Selection (C-3)	Implementation of appropriate post construction BMPs on priority projects.	● Follow Drainage Manual criteria for including and selecting post construction BMPs on projects. ● Include a check for "Storm Water Post Construction BMP" on scoping checklist.	By December 2009 By December 2010	Confirm that regions are using criteria and that it is documented. Document that checklist is developed.

Activity Number	Activity	Program Goal	Measurable Goal	Timeframe	Assessment Method
PC-4	Post Construction BMP Maintenance (C-1, C-3, C-6)	Maintain post construction BMPs to provide a water quality benefit.	● Annually, update a prioritized list of known post construction BMPs (not swales or catch basin sumps) needing significant maintenance.	Annual	Confirm list is updated.
			● Review results of baseline-inspected post construction BMPs for maintenance needs within 1 year of baseline inspection.	On-going	Confirm review.
			● Correct significant maintenance concern within 3 years of being on prioritized list.	On-going	Confirm maintenance.
PC-5	Post Construction BMP Tracking/Mapping	Locate MDOT's Post Construction BMPs statewide.	Map 100% of MDOT's known post construction BMPs (not swales or catch basin sumps).	By December 2012	Confirm mapping.
PC-6	Review Standard Details and Specifications for Water Quality Improvement	Incorporate storm water runoff controls on projects.	Review Standard details and specifications related to hydraulics and recommend modifications to enhance water quality. Prepare special provisions and pilot modifications. Incorporate changes where practicable.	By December 2009	Document that details and specifications have been reviewed.
PC-7	Develop Maintenance Performance Guides for Post Construction BMPs	Maintain BMPs to provide a water quality benefit.	Develop a Maintenance Performance Guide for each of the post construction BMPs listed in the Drainage Manual.	By December 2008	Document that guides have been completed.

Pollution Prevention and Good Housekeeping

Objective

To enhance current activities with the ultimate goal of preventing or reducing pollutant runoff from MDOT operations and properties.

Existing Pollution Prevention Practices

Many of MDOT's pollution prevention and good housekeeping practices have been in place at MDOT for many years and are described in facility Pollution Incident Prevention Plans (PIPP), procedure manuals, and guides maintained by the Maintenance Division and the Construction & Technology Division.

State Police Truck Inspections

Each year, the Michigan State Police (MSP) uses MDOT facilities (rest areas, weigh stations) to host their truck inspections. The truck inspections derive from federal safety requirements but also benefit water quality as some inspection protocols look for leaking fluids. There are several levels of inspections ranging from an extensive 30-point inspection to a simple driver certification check.

In 2007, 73,996 inspections were conducted across Michigan by the MSP. An additional 1,476 inspections were conducted by local law enforcement agencies certified by the MSP to perform the inspections. See Table 7 for an approximate break down of these inspections by region.

Table 7 State Police Truck Inspections

MSP Districts	Equivalent MDOT Regions[1]	2007 Total Inspections
1	University	11,420
2North	Metro	16,454
2South	University	11,614
3	Bay	7,263
5	Southwest	13,426
6	Grand	5,074
7	North	1,762
8	Superior	6,983
TOTAL		**75,472[2]**

[1] The MSP District boundaries and MDOT Regions do not match up exactly in the Bay, Grand, North, and University Regions. They differ by one or two boundary counties.

[2] Includes 1,476 inspections by local law enforcement agencies.

Maintenance Facility Pollution Prevention

MDOT performed/installed a number of pollution prevention mechanisms in 2007 including the following:

- Removed 7 of 8 underground storage tanks (USTs) in the Southwest Region.
- A Storm Water BMP page was included in the consolidated spill response binder, created by the Safety and Security Administration for each MDOT facility.
- Catch basin, street sweeping and pump station Maintenance Performance Guides were updated to reflect new MDEQ guidance.
- Hazardous waste disposal has been on-going throughout the State at all Maintenance Facilities.

Pollution Incident Prevention Plan (PIPP) Audits

As scheduled, no PIPP audits were conducted in 2007. The next round of audits will be in 2008. As a result of the 2005 PIPP audits, guidance related to environmental compliance were consolidated into a single binder at each applicable facility in 2007. This includes the PIPP as well as other environmental compliance manuals and guidance.

Pesticide Applicator Program

Pesticides are applied on MDOT right-of-way in accordance with Applicator Certification Regulation 636 and Pesticide Use Regulation 637 of Part 83, Pesticide Control, of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, as amended, (NREPA) and all other applicable state and federal regulations. These regulations require all applicators to be registered or certified to apply pesticides in the State of Michigan. MDOT requires all applicators to be certified if making roadside, guardrail, and brush pesticide applications on MDOT right-of-way. These applicators consist of MDOT, County and/or contractor personnel.

No changes were made to the existing Pesticide Applicator Program in 2007. Training was held on April 11-12, 2007 with 76 employees attending, and followed the same format as past years. The training is approved and attended by the Michigan Department of Agriculture

(MDA). MDA will also issue recertification credits for the certified applicators.

Road Salt/Sand Application

MDOT tracks biweekly salt and sand usage from MDOT crews and contract agencies. A salt storage program is also in affect to assist contract agencies in updating their salt sheds. Salt and sand usage on state trunklines from October 2006 through April 2007 are shown in Table 8 and Table 9, respectively. It should be noted that it is difficult to make any year to year comparisons using the data due to variation in weather conditions and road conditions. See Appendix F, *Pollution Prevention/Good Housekeeping*, for more details regarding salt and sand application.

Table 8 Salt Usage

	Winter 2005-2006	Winter 2006-2007
Region	**Salt Tonnage per Lane Mile**	**Salt Tonnage per Lane Mile**
Superior	23.9	21.1
North	25.3	21.7
Grand	25.1	23.7
Bay	16.1	14.5
Southwest	14.3	20.4
University	14.8	16
Metro	20.6	21.1
Average	**20.0**	**19.8**

Note: Lane mile totals per region are within 10% from year to year.

Table 9 Sand Usage

	Winter 2005-2006	Winter 2006-2007
Region	**Sand Tonnage per Lane Mile**	**Sand Tonnage per Lane Mile**
Superior	9.4	9.8
North	7.3	6.9
Grand	4.1	8.4
Bay	0.0	0
Southwest	0.0	0.8
University	2.3	2.8
Metro	0.0	0
Average	**3.3**	**4.1**

Note: Lane mile totals per region are within 10% from year to year.

As discussed in the MITA Cross-Section, Winter 2007, MDOT is conscious of its salt and sand usage and tests new de-icing and anti-icing technologies to reduce salt and sand usage. These technologies include pre-wetting, surface overlay systems, and global positioning systems.

Roadside Maintenance Activities

MDOT's Maintenance Environmental Team is involved with maintenance activities that help prevent storm water pollution, such as street sweeping, catch basin maintenance, ditch clean out, culvert and underdrain maintenance, mowing, brush control, and bank stabilization. Depending on the location, MDOT's direct forces or local public agencies working under contract for MDOT will conduct these maintenance activities on a regular basis.

Catch basin cleaning, approach sweeping, and curb sweeping conducted by MDOT crews is tracked using the Maintenance Activity Reporting System (MARS). The Program Cost Accounting (PCA) details and costs are tabulated in Appendix F. Street sweeping and flushing, culvert/underdrain maintenance, and ditch clean-out activities for the contracted agencies are tracked using Local Agency Payment System (LAPS) and are tabulated in Appendix F.

The culvert/underdrain maintenance activities include repair, removal, or replacement of catch basins, pipe culverts, pipe boxes, pipe headwalls, and underdrain tiles to culverts in a clean and serviceable condition. $1,649,647 was spent for roadside and general maintenance activities conducted by MDOT, including cleaning catch basins and sweeping approaches and curbs. $6,402,048 was spent for approximately 56,427 hours of activities conducted by local agencies, including street sweeping and flushing of approximately 23,574 lane miles, maintaining approximately 19,577 lane miles of culverts and underdrains, and cleaning out approximately 17,904 lane miles of ditches.

Litter Pick-Up Programs

MDOT continues to work with external groups for litter pick-up along their roadways. These groups include Adopt-A-Highway Program, Youth Corps, and cooperation with the Department of Corrections. MDOT also conducts litter pick-up using MDOT maintenance crews. Additionally, mowing contracts require contractors to pick up litter before mowing. It is difficult to get an accurate quantity of litter removal as landfill receipts are not necessary for these programs. However, public feedback for these programs has been very positive.

Fertilizer Application

Fertilizer application is not currently regulated by the government. The application of fertilizer on MDOT right-of-way is typically done on construction projects. These fertilizer applications are completed in accordance with MDOT's Standard Specifications for Construction, Section 816 and Section 917. There are very limited fertilizer applications made by MDOT Maintenance staff.

No changes were made to the fertilizer specifications in 2007.

Pollution Prevention/Good Housekeeping Inspections

- Maintenance Garage Audits (Bay Region)
- Maintenance Garage Inspection (University Region) May 1, 2007

Focus for 2008

The primary focus in 2008 will be to work with the Post Construction Storm Water Management Implementation Team to develop maintenance guidance regarding post construction storm water BMPs. In addition, the following is planned:

- The capital outlay fund for environmental remediation continues to fund new projects at MDOT facilities such as aboveground storage tanks and chemical storage buildings.
- Piloting catch basin residual drying beds.
- Training maintenance staff on new catch basin cleanout procedures.
- Providing minor spill clean-up kits in appropriate fleet vehicles.
- Developing storm water management guidance for fleet maintenance.
- Reviewing post construction BMP baseline inspection results for maintenance concerns.

Measurable Goals & Assessment

See Appendix A, Activities C-9 and C-12 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Following the submittal of this report, these activities will no longer be reported on in the activity sheet format. Instead, they have been revised into a table format under one of the six minimum measures. Table 10 shows the activities associated with the Pollution Prevention and Good Housekeeping Program.

MDOT Program Element: Pollution Prevention and Good Housekeeping Program

Priority Issues/Pollutants of Concern: Sediment, Hydrocarbons, Chemicals

Pollution Sources: Roads, Maintenance Garages, MDOT Right-of-Way

Table 10 Pollution Prevention and Good Housekeeping Activities

Activity Number	Activity	Program Goal	Measurable Goal	Timeframe	Assessment Method
PPGH-1	PIPP Implementation (C-12)	Minimize exposure of materials to rainfall. Prompt and appropriate clean-up of spills.	All MDOT fleet maintenance and storage facilities will have a PIPP.	By December 2008	Audit maintenance garages for compliance with PIPP. Follow-up on results.
PPGH-2	Road Maintenance (C-9)	Minimize discharge of pollutants to waterbodies from roadways and parking lots.	● Review maintenance contracts and maintenance performance guides for inclusion of storm water activity updates.	Every 3 years	Document that review was conducted.
			● Inform contract agencies and MDOT Staff of changes to maintenance guides with the expectation that they begin new procedures within one year of notice.	On-going	Random inspections by TSCs and regions.
PPGH-3	Minor Spill Clean-up	Minimize discharge of pollutants to waterbodies from roadways and parking lots.	Identify which vehicles should have spill kits for minor spills and provide each with a kit.	By December 2009	Audit fleet vehicles for spill kit. Follow-up on results.
PPGH-4	Pesticide Use	Minimize discharge of pollutants to waterbodies from roadways, ROW, and parking lots.	Train pesticide applicator staff as approved by the Michigan Dept. of Agriculture.	On-going	Document those trained. Inspection: MDA road checks.

Activity Number	Activity	Program Goal	Measurable Goal	Timeframe	Assessment Method
PPGH-5	Training (T-1)	Minimize discharge of pollutants to waterbodies from roadways, ROW, and parking lots.	● Provide information to appropriate staff on minor spill clean-up procedures, as needed.	By December 2009	Document those trained.
			● Provide information to appropriate staff on catch basin cleanout procedures, as needed.	By December 2008	Document those trained.
			●Provide information to appropriate staff on storm water guidance for fleet maintenance.	By December 2010	Document those trained.
PPGH-6	Road Salt/Sand Application	Minimize salt/sand usage for de-icing.	● Calibrate MDOT salt trucks annually.	Annual	Document that each salt truck is calibrated.
			● Require contract agencies to calibrate their salt trucks annually.	On-going	Document how this is required.
PPGH-7	Storm Water Management Guidance for Fleet Maintenance	Minimize discharge of pollutants to waterbodies from roadways and parking lots.	● Develop storm water management guidance for MDOT fleet maintenance facilities.	By December 2009	Document that guidance is developed and distributed.
			● Incorporate storm water management guidance into the PIPP for each MDOT fleet maintenance facility.	By December 2010	Document that each facility has the guidance document.

Construction Site Runoff Management

Objective

To enhance the current activities to effectively reduce pollution and accelerated soil erosion and resulting sedimentation on MDOT construction and maintenance projects.

Existing SESC Practices

Many of MDOT's soil erosion and sedimentation control procedures have been in place at MDOT for many years and are described in the MDOT SESC Manual, Construction Manual, and Standard Specifications for Construction maintained by the Construction & Technology Division. The Construction Manual and Standard Specifications for Construction are currently in the process of being updated.

SESC Program Review Process

MDOT is proceeding with the SESC Program Review Process. From now until the end of the permit cycle (April 1, 2009), each Transportation Service Center will be reviewed twice per the SESC Program Review Process. Beginning in 2009, the reviews will be triggered by the Engineer Certification Program (ECP) which will be on a three-year cycle.

In 2006, over 30 SESC program reviews were conducted at construction sites statewide following the SESC Program Review Process. See Appendix G, *Construction Site Runoff Management,* for review locations.

Construction Advisories

In 2007, two Construction Advisories related to storm water were developed. The first one (CA 2007-12) was distributed on June 11, 2007, relating to, *Hydrodemolition and Concrete Diamond Grinding*. This construction advisory serves to clarify the permitting for discharge of process water from hydrodemolition work and to remind construction staff of the need to ensure both hydrodemolition and diamond grinding operations are completed according to the applicable contract documents.

On August 14, 2007 (CA 2007-13) *Riprap Placement for Storm Water Drainage* was distributed. CA 2007-13 emphasizes construction details for riprap placement at those locations intended to carry storm water and provide protection against soil erosion and any subsequent sedimentation. The advisory specifically addresses ditches, channels, spillways and storm water outfalls. See Appendix G for a copy of the Construction Advisories.

Training: Part 91 and Part 31 of Act 451

Pursuant to Part 91 of Act 451, MDOT has established procedures for soil erosion and sedimentation control, as detailed in the MDOT SESC Manual. Appropriate MDOT staff are trained and certified as required under Part 91. MDOT utilizes Certified Storm Water Operators as required under Part 31 of Act 451. Table 11 lists the number of staff in each region that are SESC certified. Additionally, 442 total MDOT staff are certified as Storm Water Operators and 29 were certified in 2007.

Table 11 MDOT Staff SESC Certified

Region	Number of Staff SESC Certified in 2007	Total Number of Staff SESC Certified
Lansing Central Office	3	32
Bay	7	80
Grand	12	89
Metro	26	147
North	4	93
Southwest	4	92
Superior	6	84
University	9	86
Total	**71**	**703**

Construction Quality Partnership (CQP)

MDOT is currently working with industry to develop a Construction Quality Partnership (CQP). MDOT implemented the partnership on five projects for the 2007 construction season. For these projects, MDOT staff provided training for key department and contractor personnel involved with the projects. Each project included four specific work items to improve construction quality. One of the work items was SESC. This training was intended to raise a level of awareness of the importance of SESC for all parties during the execution of MDOT projects. This includes both MDOT and contractor staff.

Focus for 2008

Upcoming SESC Activities:

- Incorporating pollution prevention practices on construction sites, such as material storage and concrete truck washout.

- Reviewing the Standard Specifications for Construction for inclusion of storm water-related specifications.

Measurable Goals & Assessment

See Appendix A, Activity C-7 to view the progress in reaching the interim milestones and measurable goals as defined in the SWMP.

Following the submittal of this report, this activity will no longer be reported on in the activity sheet format. Instead, it has been incorporated into Table 12. Table 12 shows the activities associated with the Construction Site Runoff Management Program.

MDOT Program Element: Construction Site Runoff Management

Priority Issues/Pollutants of Concern: Sediment, Hydrocarbons, Concrete residual

Pollution Sources: Construction sites

Table 12 Construction Site Runoff Management Activities

Activity Number	Activity	Program Goal	Measurable Goal	Timeframe	Assessment Method
CON-1	SESC Program Review Process (C-7)	Have necessary SESC controls in place to prevent movement of sediment off-site or into waters of the state.	● Reduce the incidences of erosion and sedimentation on projects that could lead to Notice of Violation letters.	On-going	Document number of letters received.
			● Discuss SESC at the preconstruction meeting at 100% of projects where this is applicable.	On-going	Review pre-con meeting minutes for SESC discussion for active projects.
CON-2	Training (T-1), (T-3)	Increased understanding of SESC and pollution control alternatives.	Have 100% of MDOT staff responsible for administering Part 91 and Part 31 trained and certified.	On-going	Document those informed.
			Provide information on pollution prevention practices to 100% of MDOT staff responsible for administering Part 31 on construction sites.	By December 2009	Document those informed.
			Develop a plan to confirm, as needed, that contract counties are trained in SESC and pollution prevention controls during earthwork activities.	By December 2008	Document that a plan is developed.

Activity Number	Activity	Program Goal	Measurable Goal	Timeframe	Assessment Method
CON-3	Construction Plan Review	Have necessary SESC controls in place to prevent movement of sediment off-site or into waters of the state.	Conduct SESC plan reviews for 100% of earthwork or bridge projects .	On-going	Plan reviews: Document reviews and comments.
CON-4	Special Provision on Non-compliance	Ensure that contractors comply with SESC requirements.	Reduce the number of times it is necessary to enforce SESC through the special provision on non-compliance.	On-going	Document number of times special provision has been used.
CON-5	Fertilizer Use	Minimize discharge of pollutants to waterbodies from ROW.	Review fertilizer use and application language in the Standard Specifications for Construction for storm water concerns.	By December 2010	Document changes to specification.
CON-6	Pollution Prevention	Minimize discharge of pollutants to waterbodies from ROW.	Conduct pollution prevention plan reviews for 100% of projects	By December 2008	Document that a plan is developed.

Appendix A
Storm Water Management Plan Activity Sheets

Appendix A contains all of the activity sheets from Chapter 3 of the Storm Water Management Plan. Each activity sheet denotes modifications to the activity's interim milestones and measurable goals and also indicates which interim milestones and measurable goals have been completed or implemented as shown with gray shading.

Activity E-2: Publish Articles in MDOT Publications

Affected Party: Job-Related Public

Objective: To educate the job-related public on watershed stewardship, the MDOT storm water program, illicit discharges, construction and post-construction BMPs, and/or new program announcements.

Description: Prepare storm water program articles for publication using internal MDOT publications. The articles are to provide information about the MDOT storm water program in a manner to gain understanding and support for implementing the program by the job-related public.

Annual Reporting: Track topics and number of articles circulated.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity E-1 - Lansing Information Center
Activity E-3 - MDOT Public Web Site
Activity T-4 - Storm Water Knowledge Survey

Permit Requirement: Part I.B.1.a(1): Educate the job-related public of hazards associated with improper disposal of waste/illicit discharges.
Part I.B.1.a(3): Educate the job-related public of watershed stewardship and implement program.

No.	Measurable Goals	Schedule	Responsible
1	Develop and publish storm water-related articles in a Region-based newsletter, Adopt-A-Highway newsletter, Monday Memo, or other appropriate newsletters at least quarterly throughout the Permit cycle. Contract agencies will be included on the newsletter distribution list.	Quarterly beginning April 1, 2006 [On-going]	E&O Team and MDOT Communications Staff.
2	Provide storm water information to contract agencies through the Michigan Local Technical Assistance Program (LTAP).	By February 1, 2006 [On-going]	E&O Team and Maintenance Environmental Team (MET)
3	A general survey of storm water awareness will be conducted as described in Activity T-4. The survey will be designed to assess the educational program as a whole including the effectiveness of article publication.	Baseline Survey-2005 [Completed]	Storm Water Program Manager
4	A follow up survey will be conducted in 2008 to assess the need for program modifications.	Follow up Survey- 2008	Storm Water Program Manager

Activity E-3: Provide Information on Watershed Stewardship on the MDOT Public Web Site

Affected Party: Job-Related Public and Traveling Public

Objective: To educate the job-related and traveling public on MDOT's watershed stewardship practices and promote these practices on all projects where feasible.

Description: MDOT developed a public information Web site about the Phase II storm water program. The Web site provides general information about watershed stewardship practices as well as links to pertinent storm water-related materials. This information will be maintained and monitored to report Web site usage.

Annual Reporting: Track internal and external Web site hits and the number of SWMP document downloads on the MDOT Storm Water Public Web Site.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity E-1 - Lansing Information Center
Activity E-2 - Publish Articles in MDOT Publications
Activity T-4 - Storm Water Knowledge Survey

Permit Requirement: Part I.B.1.a(1): Educate the job-related public of hazards associated with improper disposal of waste/illicit discharges.
Part I.B.1.a(3): Educate the job-related public of watershed stewardship and implement program.
Part I.B.6: Ensure MDOT employees maintain and follow proper pollution prevention controls.

No.	Measurable Goals	Schedule	Responsible
1	The MDOT Storm Water Public Web Page will be updated quarterly with the most recent MDOT storm water information and news.	Quarterly [On-going]	E&O Team and MDOT Information and Technology Mgr.
2	A link to the MDOT Storm Water Public Web Page will be added to the MDOT Public Web Site home page. [*This is turning out to be difficult as it is highly competitive to be allotted space on the homepage.*]	By April 1, 2006 [When possible]	Storm Water Program Manager
3	A storm water-related quiz/comment form will be developed for inclusion on the MDOT Storm Water Public Web Page. [Modified] *A Jeopardy-type format has been selected for this activity.*	By December 31, 2005 [Completed]	E&O Team and MDOT Information and Technology Mgr
4	A general survey of storm water awareness will be conducted as described in Activity T-4. The survey will be designed to assess the educational program as a whole including the effectiveness of article publication.	Baseline Survey- 2005 [Completed]	Storm Water Program Manager
5	A follow up survey will be conducted in 2008 to assess the need for program modifications.	Follow up Survey- 2008	Storm Water Program Manager

Activity E-4: Provide Education Materials along with Tap-In/Discharge Permit Applications

Affected Party: Applicants obtaining a Discharge/Tap-In Permit and Region/TSC Staff involved with reviewing and approving permits.

Objectives: To inform applicants of acceptable discharges into the MDOT drainage system, and also of the potential negative impacts to water quality from unacceptable or illegal discharges and ways to mitigate these impacts. To inform MDOT permitting and utilities staff statewide that this education material will be distributed with the tap-in/discharge permit and that educating applicants is important to protecting water quality.

Description: Prepared education materials for typical development activities connecting to MDOT facilities. Established and implemented procedures for distributing these materials.

Annual Reporting: Track quantity of permit applications/educational materials distributed.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity I-4 - Updates to Legal Authority

Permit Requirement: Part I.B.1.c: Provide pollutant prevention information to applicants that apply to tap into the MDOT drainage system.

Part I.B.1.c: Train MDOT employees to provide pollution prevention education during application process.

No.	Interim Milestones	Schedule	Responsible
1	Develop educational material to be included in the tap-in/discharge permit application.	Completed in November 2004	IDEP Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Distribute education materials to 100% of tap-in/discharge permit applicants.	Ongoing beginning December 2004	MDOT Permitting Staff
2	Instruct MDOT staff to distribute materials as instructed in the revised Construction Permit Manual (CPM).	By June 1, 2005 [Completed]	
3	Review the adequacy of the procedure for distributing materials.	Every five years	

Activity E-6: Determine Partnership Potential with MDEQ Statewide Public Education Program

Affected Party: Traveling Public

Objective: To evaluate the potential for MDOT to educate the public through the MDEQ statewide public education program.

Description: As an alternative to performing a stand-alone education program for the traveling public, MDOT will evaluate providing financial support to a statewide campaign being developed by MDEQ. If MDOT decides not to support the MDEQ campaign, they would be required to perform their own program, in which case, a program plan will be developed and submitted to MDEQ for approval.

Annual Reporting: MDOT will decide whether or not to participate in statewide program.

Related Activities: Activity A-1 - Program Assessment and Reporting

Permit Requirement: Part I.B.1.b: If the MDEQ develops a statewide public education program, MDOT may either seek a partnership agreement with the MDEQ for implementation of Part I.B.1.b. of this Permit, or develop and implement a program to increase awareness and seek positive public behavior.

No.	Measurable Goals	Schedule	Responsible
1	Attend meetings with MDEQ statewide education advisory committee and MDEQ decision makers.	Once MDEQ finalizes their statewide public education program, MDOT will decide within 6 months whether or not to participate. A public education plan will be developed within 12 months if MDOT chooses not to participate.	Consultant and MDOT Storm water Program Manager
2	Obtain statewide campaign materials including cost to participate and evaluate the potential value of entering into a partnership with MDEQ.		
3	Develop participation agreement with MDEQ or develop an MDOT Public Education Plan (PEP).		

Activity T-1:	***Present Applicable Training Modules to the Job-Related Public***
Target Audience:	Lansing and Region/TSC Staff and contract agencies
Objective:	Educate the Job-Related Public about the Storm Water Management Program.
Description:	Use the four 15 minute MDOT storm water program training modules to train Lansing and Region/TSC staff and contract agencies. • Module One: Introduction to SW Management • Module Two: Best Management Practices • Module Three: Maintenance Considerations • Module Four: Illicit Discharge & Maintenance
Annual Reporting:	Track training attendance. Track contract agencies receiving modules.
Related Activities:	Activity T-4 - storm water survey; Activity I-3 - illicit discharge notification; Activity T-3 - Part 91 and Part 31 training
Permit Requirement:	Part I.B.1.a(1), Part I.B.1.a(2), Part I.B.1.a(3), Part I.B.4.b(2), Part I.B.6

No.	Interim Milestones	Schedule	Responsible
1	Determine target audiences for the storm water modules. [Modified] *Determine target audiences annually for new procedure training.*	By June 1, 2005 [Modified] *On-going*	Implementation Teams as appropriate
2	Add storm water awareness training to existing MDOT training database (On-Track) to track individual employee training. Include training modules as part of select employee performance evaluations in 2006. [Modified] *Incorporate routine trainings into existing MDOT training database (On-Track) to track individual employee training.*	During 2006 [On-going]	E&O Team
3	Provide train-the-trainer preparation for presenters.	On-going	Implementation Teams as appropriate
4	Ensure modules are delivered during staff meetings and other meetings as warranted.	On-going	Implementation Teams as appropriate
5	Develop training evaluation surveys.	July 1, 2005 [Modified] *On-going*	E&O Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Review and update modules. [Modified] *Review and update routine trainings.*	Annually starting October 1, 2005 [Modified] *On-going*	E&O Team and MDOT Staff
2	Train Region/TSC Staff with storm water-related responsibilities on the four storm water modules. [Modified] *Train Region/TSC Staff with storm water-related responsibilities on storm water issues relevant to their job.*	By April 1, 2009	Implementation Teams as appropriate
3	Encourage trainees to complete training evaluation at the close of each training session.	Start Aug. 1, 2005 [Modified] *On-going*	Implementation Teams as appropriate
4	Provide modules to contract agencies and contracting associations with a request to use the modules. Provide information through the Michigan Local Technical Assistance Program (LTAP). [Modified] *Provide training and information regarding storm water issues to contract agencies and associations. Provide information through LTAP.*	By February 1, 2006 [On-going]	Maintenance Environmental Team (MET)
5	A general survey of storm water awareness will be conducted as described in Activity T-4. The survey will be designed to assess the educational program as a whole including the effectiveness of article publication.	Baseline Survey-2005 [Completed]	Storm Water Program Manager
6	A follow up survey will be conducted in 2008 to assess the need for program modifications.	Follow up Survey-2008	Storm Water Program Manager

Activity T-2: Certify MDOT's Staff for Pesticide/Fertilizer Application

Target Audience: MDOT Maintenance Staff and Contract Agencies

Objective: To reduce pollution entering waters of the state, statewide, that originates from pesticide/fertilizer application.

Description: The existing training and certification program for pesticide/fertilizer applications will be evaluated and tracked to document performance and to prevent storm water pollution. Results will be used to recommend changes if appropriate.

Annual Reporting:

- Track the number of individuals attending annual pesticide training.
- Track number of MDOT personnel certified as a pesticide applicator.
- Summarize evaluation and review of programs, policies, procedures and information.
- Report changes to fertilizer specifications.

Related Activities: Activity A-1 - Program Assessment and Reporting

Permit Requirement: Part I.B.6.f: Minimize the discharge of pollutants related to storage, handling and use of herbicides/fertilizers. Provide employee training for herbicides/fertilizers to protect water quality.

No.	Measurable Goals	Schedule	Responsible
1	MDOT Staff applying pesticides will be trained and certified annually per Michigan Department of Agriculture requirements.	On-going	MDOT Maintenance Staff
2	MDOT Staff or Contract Agencies will follow MDOT's Standard Specifications for Construction, Sections 816 and 917 for fertilizer application practices.	On-going	MDOT Maintenance Staff
3	Evaluate application practices and pollution prevention measures and recommend and formalize any changes if appropriate.	Annually starting April 1, 2006 [On-going]	Maintenance Environmental Team, MDOT Maintenance Staff

Activity T-3: Train Staff Responsible for Administering Part 91 and those having Decision Making Authority for SESC Plan Development or Review, Inspections, or Enforcement; and Storm Water Operators as Required under Part 31

Affected Party: MDOT Maintenance Supervisors and Coordinators and Construction Supervisors

Objective: To reduce non-storm water discharges to the MEP to receiving water bodies.

Description: The existing MDEQ sponsored Soil Erosion and Sedimentation Control (SESC) training program will be attended by appropriate maintenance staff. Successful completion of the training and certification of storm water operators will be documented.

Annual Reporting: Total number of staff trained and certified for compliance with Part 31 and Part 91 requirements.

Related Activities: Activity A-1 - Program Assessment and Reporting

Activity C-7 - QA/QC Protocol for Construction Storm Water Control

Permit Requirement: Part I.B.5.a: MDOT shall meet the following requirements on MDOT construction sites statewide, but may rely on the MDOT SESC Plan and Michigan's Permit by Rule to the extent that those controls meet the requirements: 1) Implement soil erosion and sedimentation controls, 2) Control demolition and construction waste materials at construction sites, 3) Consider potential water quality impacts during road construction plan reviews, and 4) Inspect sites to assure that pollution control measures are appropriate and functional.

Part I.B.6: The program shall include employee and contractor training to prevent and reduce storm water pollution through proper implementation and maintenance of BMPs. The program may be developed and implemented using BMP guidance and training materials that are available from federal, state or local agencies.

No.	Measurable Goals	Schedule	Responsible
1	MDOT Staff Responsible for Administering Part 91 and those having Decision Making Authority for SESC Plan Development or Review, Inspections, or Enforcement will receive NPDES training.	On-going	MDOT Maintenance Supervisors and Coordinators and Construction Supervisors
2	MDOT Staff Responsible for Administering Part 91 and those having Decision Making Authority for SESC Plan Development or Review, Inspections, or Enforcement will be certified as Storm Water Operators as Required under Part 31.	By April 1, 2006 [On-going]	
3	Add NPDES training to MDOT Performance Excellence Division tracking system (On-Track).	By April 1, 2006 [Completed]	MDOT Storm Water Program Manager

Activity T-4: Survey MDOT Staff on Storm Water Knowledge

Affected Party: Representative MDOT Staff

Objective: To determine the current level of storm water knowledge for a statistical mix of administrative, technical, professional, and engineering staff to evaluate the effectiveness of the education program.

Annual Reporting:

- Report the survey results.
- Report the results of subsequent survey and compare.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity E-1 - Lansing Information Center
Activity E-2 - Publish Articles in MDOT Publications
Activity E-3 - MDOT Public Web Site
Activity T-1 - Training Modules for Job-Related Public

Permit Requirement: Part I.B: The MAXIMUM EXTENT PRACTICABLE requirement shall be met by implementation of BMPs to comply with minimum measures for which the permittee has authority, implementation of BMPs to comply with minimum levels of storm water pollution control established in TMDLs if applicable, and a demonstration of effectiveness or environmental benefit for each BMP.

No.	Interim Milestones	Schedule	Responsible
1	Develop and prepare baseline survey for distribution.	Completed	Consultant and MS4 Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	A general survey of storm water awareness will be conducted as described in Activity T-4. The survey will be designed to assess the educational program as a whole including the effectiveness of article publication.	Baseline Survey-2005 [Completed]	Storm Water Program Manager
2	A follow up survey will be conducted in 2008 to assess the need for program modifications.	Follow up Survey-2008	Storm Water Program Manager
3	Review the 2005 survey for baseline information.	By April 1, 2006 [Completed]	Consultant and MS4 Team
4	Review the 2008 survey to determine program effectiveness.	By April 1, 2009	MDOT Storm Water Program Manager
5	Increase the number of staff who are fully aware of MDOT's storm water program by 20% from 2005 to 2008.	2005 to 2008	N/A

Activity I-1: Submit and Implement Mapping Schedule for Outfalls (urbanized areas only)

Affected Party: MDOT Staff and Contractor/Consultant

Objective: To develop a mapping schedule and complete mapping of outfalls in MDOT right-of-way in urbanized areas including MDOT roads crossing 305(b)-listed water bodies and other non-impaired water bodies.

Annual Reporting: Track completed maps.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity I-5 - Map Known Outfalls
Activity C-10 - Procedure for Outfall Labeling

Permit Requirement: Part I.B.3.a: Within one year, submit schedule for maps of known outfalls.

Maps shall be developed for outfalls at roadway crossings no later than expiration of Permit.

No.	Interim Milestones	Schedule	Responsible
1	Complete maps of outfalls at stream crossings over or within 300 feet of impaired waters of the state within urbanized areas based on field inspection of top priority outfalls.	By April 1, 2009	Consultant And IDEP Team
2	Complete maps of outfalls at stream crossings over waters of the state within urbanized areas that are not field screened based on a GIS analysis.	By April 1, 2006 [Completed]	Consultant And IDEP Team
3	Develop process for notifying consultant of newly constructed outfalls.	By April 1, 2009	Consultant And IDEP Team
4	Link outfall screening/investigations to the asset management team's inventory database procedure.	By April 1, 2009	Consultant And IDEP Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Map outfalls in MDOT right-of-way in urbanized areas according to the schedule posted in the SWMP.	See Table 3-3 of the SWMP	Consultant And IDEP Team

Activity I-2: Perform Inventory and Dry Weather Screening on Outfalls

Affected Party: Consultant, MDOT Region Storm Water Coordinators, and Storm Water Program Manager

Objective: To identify illicit discharges and connections from the MDOT storm sewer system within 2000 Census urbanized areas as prioritized in the IDEP Plan.

Annual Reporting:

- Number and location of confirmed outfalls.
- Total number of suspected illicit connections/discharges identified.
- Number and location of manholes tested for each suspected illicit connection/discharge.
- Results of sample analysis.
- Description and number of illicit connections/discharges verified.
- Estimated amount and type of pollutant removed.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity I-1 - Submit and Implement Mapping Schedule for Outfalls
Activity I-4 - Updates to Legal Authority
Activity I-5 - Map Known Outfalls

Permit Requirement: Part I.B.3.b: Outfalls prioritized and top priority outfalls (305(b)-listed water bodies impaired by untreated sewage, bacteria, pathogens, nutrient enrichment, nuisance plant growth, nuisance algal growth, low dissolved oxygen, sediments, oil or grease, fish kills, and fish or macroinvertebrate communities rated poor) shall be screened for dry weather discharges.

Part I.B.3.b: Use screening results to identify and eliminate illicit discharges as expeditiously as practicable.

Part I.B.3.b: Illicit connections that cannot be disconnected immediately shall be identified in annual report and eliminated as soon as possible.

No.	Measurable Goals	Schedule	Responsible
1	Follow illicit discharge procedure (Section 3.3) for 100% of illicit discharges found.	Beginning April 1, 2005 [On-going]	Consultant, IDEP Team, And Region IDEP Coordinators
2	Update MDEQ of the areas selected for dry weather screening.	Monthly starting November 1, 2004 [On-going]	Consultant, IDEP Team, And Region IDEP Coordinators

Activity I-3: Receiving and Notifying MDEQ of Illicit Discharges and Actions Taken

Affected Party: MDOT Region Storm Water Coordinators, TSC Managers, and Storm Water Program Manager

Objective: To receive reports and notify the MDEQ of illicit discharges, statewide, to the MDOT storm sewer system. To take action toward removing these discharges.

Description: Procedure for receiving and responding to reports of illicit discharges is established as part of Section 9.13 of the Construction Permit Manual. Training to effectively implement the procedure will be conducted. Procedure for receiving reports from construction site runoff is already in place as part of the SESC Manual.

Annual Reporting:

- Track the number of reports received and the follow-up actions taken.
- Track the number of illicit connections/discharges identified and removed.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity T-1 - Present Training Modules to Region/TSC staff
Activity I-4 - Updates to Legal Authority

Permit Requirement: Part I.B.3.c: Provide a system to accept and respond statewide to reports of illicit discharges received from job-related public.

No.	Interim Milestone	Schedule	Responsible
1	Develop illicit discharge reporting and notification training and provide to region IDEP coordinators.	By May 1, 2006 [Completed]	E&O Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Train Maintenance and Construction staff with storm water responsibilities to follow the illicit discharge notification procedure.	By December 1, 2005 [On-going]	E&O Team and Region IDEP Coordinators
2	Add Illicit Discharge Notification training to existing MDOT employee training database (On-Track).	By April 1, 2006 [Completed]	Storm Water Program Manager

Activity I-4: Report Updates and Changes to Legal Authority Status

Affected Parties: Landowners discharging or planning to discharge to MDOT's drainage system, MDOT Permit & Utilities Staff

Objective: To regulate discharges to MDOT's drainage system and require compliance with its permit.

Annual Reporting: Report changes to legal authority by revising Sections 9.13 and 14.01 of the Construction Permit Manual.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity I-2 - Perform Inventory and Dry Weather Screening on Outfalls
Activity I-3 - Receiving and Notifying MDEQ of Illicit Discharges and Actions Taken

Permit Requirement: Part 1.B.3.d(1): Legal authority to regulate the contribution of pollutants to the drainage system.
Part 1.B.3.d(2): Legal authority to regulate the rate of water inflow.
Part 1.B.3.d(3): Legal authority to prohibit illicit connections/discharges into drainage system.
Part 1.B.3.d(4): Legal authority requiring compliance with conditions in Permit.

No.	Measurable Goal	Schedule	Responsible
1	Assess legal authority annually to determine if any updates or changes are necessary.	Annually [On-going]	IDEP Team

Activity I-5: Map Known Outfalls (statewide)

Affected Parties: MDOT Region Storm Water Coordinators, Planning and Design, Construction & Technology Staff, and Asset Management

Objective: To map known outfalls statewide based on existing survey information. To develop and implement a procedure to revise the known outfall maps annually.

Annual Reporting: Document the procedure for making annual map revisions, and track updated outfalls.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity I-2 - Perform Inventory and Dry Weather Screening on Outfalls
Activity C-10 - Procedure for Outfall Labeling

Permit Requirement: Part 1.B.3.a: Within one year following the effective date of this Permit, the permittee shall submit a schedule for providing maps showing the location of known outfalls.

Known Outfall Mapping Schedule (statewide)
(from Table 3-2 in the MDOT Storm Water Management Plan)

Activity	**Schedule**	**Responsible Party**
Compile survey data.	By August 1, 2005 [Completed]	MDOT Supervising Surveyor
Develop guideline to define outfalls.	By August 1, 2005 [Completed]	Consultant, Outfall Mapping Workgroup
Develop draft known outfall maps.	By December 31, 2005 [Completed]	Consultant
Provide draft known outfall maps to region storm water coordinators.	By February 1, 2006 [Modified] *By May 1, 2006* [Completed]	Consultant
Review draft maps.	By May 1, 2006 [Completed]	Region Storm Water Coordinators and TSC/Region Staff
Revise maps.	By August 1, 2006 [Completed]	Consultant
~~Provide final known outfall maps to MS4 Committee.~~	~~By September 1, 2006~~	~~Consultant~~
~~Review final maps.~~	~~By December 1, 2006~~	~~MS4 Committee~~
Finalize Maps.	By March 1, 2007 [Completed]	Consultant
Develop and implement an internal process for making annual map revisions.	*By April 1, 2009* [Modified]	IDEP Team, Consultant
Update known outfall maps annually and include in the annual progress reports.	Annually starting April 1, 2008 [On-going]	Consultant, MS4 Committee

No.	Interim Milestones	Schedule	Responsible
1	Compile survey data.	By August 1, 2005 [Completed]	MDOT Design Surveys
2	Develop guideline to define outfalls.	By August 1, 2005 [Completed]	IDEP Team
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Map known outfalls in MDOT right-of-way statewide according to the schedule posted in the SWMP.	Starting April 1, 2005 (See Table 3-2 in the SWMP) [Completed]	Consultant and IDEP
2	Develop and implement an internal process for making annual map revisions. [*Working on various avenues of tracking and reporting which requires more time*.]	*By April 1, 2009* [Modified]	Consultant and IDEP
3	Update known outfall maps annually and include in the annual progress report.	Annually starting April 1, 2008	Consultant and IDEP

Activity C-1: Maintenance Requirements for MDOT Permanent Best Management Practices (BMPs) (Post-Construction)

Affected Party: MDOT Maintenance, Maintenance Activity Reporting System (MARS) Team, Delivery, and Design Staff

Objective: To protect receiving water quality statewide by developing and implementing maintenance requirements for permanent MDOT-approved BMPs.

Annual Reporting: Track BMP maintenance activities using MARS.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity C-6: Implement Procedures to Select and Apply Best Management Practices for Storm Water Management Activities (Post-Construction)

Permit Requirement: Part I.B.4.b(2): Requirements for long-term operation and maintenance of BMPs.
Part I.B.6.a(1): Statewide routine maintenance for structural controls.
Part I.B.6.a(2): In urbanized areas, cleaning schedules may need to be enhanced if control measures fail to adequately reduce the discharge of pollutants to or from the drainage system.

No.	Interim Milestones	Schedule	Responsible
1	Review draft procedure for maintenance of permanent BMPs with appropriate MDOT entities for approval.	By July 1, 2007 [Completed]	Post-Construction Storm Water Management (Post-Const.) Team And Maintenance Environmental Team (MET)
2	Document maintenance procedures and issue staff guidance.	By Sept. 1, 2007 [Completed]	
3	Review Maintenance Performance Guides and update accordingly.	By October 1, 2006 [Modified] *By Dec. 31, 2008*	
4	Notify appropriate staff of changes to manuals.	By December 31, 2006 [Modified] *By Feb. 1, 2009*	
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Develop and implement procedures for maintaining permanent BMPs not already having a maintenance procedure.	By Feb. 1, 2008 [Completed]	Post-Const Team And MET
2	Develop and implement a procedure for maintaining each <u>new</u> permanent BMP within one year of formal adoption of the new permanent BMP.	As needed beginning Feb. 1, 2008 On-going	Post-Const Team And MET
3	Maintain existing permanent BMPs according to existing MDOT procedures.	On-going	
4	Evaluate ways to improve maintenance practices in urbanized areas if control measures fail to adequately reduce discharge of pollution.	As needed beginning April 1, 2006	

Activity C-2: Identify and Coordinate with Metropolitan Planning Organizations (MPOs) Having Storm Water Quality Control Programs.

Affected Parties: MDOT Staff and MPOs

Objective: To identify and coordinate, statewide, with MPOs having storm water quality control programs to properly handle storm water management issues during construction and maintenance activities.

Annual Reporting:

- Track letters distributed to the planning organizations.
- Track letters distributed to watershed and environmental groups soliciting area of concern comments.
- Track the major action environmental documents (environmental assessments and environmental impact statements) distributed to watershed groups for their comments.
- Track responses from watershed and environmental groups concerning areas of concern.
- Track any early coordination meetings held with watershed and environmental groups including whether groups attend a public meeting or comment on one of the major action documents.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity C-4 - MDEQ Early Coordination
Activity C-5 - Storm Water Discharges to TMDL Water Bodies

Permit Requirement: Part I.B: Within areas with watershed management plans, reducing discharge to the maximum extent practicable shall include implementation of BMPs to comply with watershed goals.
Part I.B.2.c: Where MPOs exist, MDOT shall identify and cooperate with local storm water master planning processes and the MPO. MDOT shall implement storm water controls as necessary to cooperate with local storm water master plans.
Part I.B.4.a: Program to coordinate with local planning efforts that conform with the cooperative planning requirements of 23 CFR 450.210 and 23 CFR 450.312 and which considers potential environmental effects of impervious surfaces.
Part I.B.4.a: MDOT shall make information available to local planning efforts.

No.	Measurable Goals	Schedule	Responsible
1	Notify recognized watershed and environmental groups that MDOT is accepting input on special BMP requirements for sensitive streams or portions of streams.	Letter mailed February 2006	Consultant, Storm Water Program Manager
2	Consider watershed and environmental group input during early coordination of MDOT transportation projects through Context Sensitive Solutions.	On-going beginning April 1, 2006	MDOT Region Planning and Design Staff

Activity C-3: Procedure to Select, Apply, and Maintain Permanent Best Management Practices (BMPs) for Storm Water Management Activities (Post-Construction)

Affected Party: MDOT Maintenance, Planning and Design, Traffic & Safety, Maintenance Environmental Team (MET), and MS4 Team

Objective: To develop a procedure for selecting, applying and maintaining permanent BMPs for selected MDOT projects statewide.

Annual Reporting: Track permanent BMP installation and maintenance.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity C-4 - MDEQ Early Coordination
Activity C-5 - Storm Water Discharges to TMDL Water Bodies
Activity C-6 - Select, Apply, Maintain Permanent BMPs
Activity C-8 - Update Drainage Manual

Permit Requirement: Part I.B.4.b(1): Requirements for implementation of BMPs.
PartI.B.4.b(2): Requirements for long-term operation and maintenance of BMPs.

No.	Interim Milestones	Schedule	Responsible
1	Evaluate procedures for selecting, applying, and maintaining permanent BMPs. Approved MDOT permanent BMPs are located in the Drainage Manual. Develop a procedure to add new BMPs to the MDOT-approved BMP list.	By December 31, 2005 [Completed]	Post-Const Team
2	Review options with appropriate MDOT entities including development of a funding source based on research from other states.		
3	Make a recommendation for approval.		
4	Lay out a detailed framework for the approved procedure.	By July 1, 2007 [Completed]	
5	Document procedure and issue staff guidance.		
6	Update the existing process in the Drainage Manual and tie the process into the scope verification procedure.	By Dec. 31, 2007 [Completed]	
7	Notify appropriate staff of changes to manuals.		
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Develop procedure for selecting, applying, and maintaining permanent BMPs.	By December 31, 2005 [Completed]	Post-Const Team
2	All projects will be evaluated for permanent storm water BMP inclusion during scoping/early design.	By Dec. 31, 2007 [Completed]	MDOT Design Staff

Activity C-4: Procedure to Work With MDEQ for Early Coordination on Initial Design Projects

Affected Parties: MDOT Development, Design, Real Estate, Environmental, and Maintenance Staff and MDEQ Staff

Objective: To have early coordination with MDEQ for input on BMP type and placement of select projects statewide.

Annual Reporting:

- Track projects where early coordination was sought with MDEQ and other regulatory agencies.
- Track projects where MDEQ provided timely recommendations.
- Document actions taken based on comments received from MDEQ.
- Document the results of the annual meeting with MDEQ Water Bureau on early coordination issues.

Related Activities: Activity A-1 - Program Assessment and Reporting; Activity C-2 - Coordinate with MPOs; Activity C-5 - Storm Water Discharges to TMDL Water Bodies; Activity C-8 - Update Drainage Manual

Permit Requirement: Part I.B.4.c: Allow MDEQ review of preliminary construction plans and provide input on placement of drainage and BMPs.

No.	Interim Milestones	Schedule	Responsible
1	Develop draft procedure for early coordination on initial design projects.	By April 1, 2005 [Completed]	Public Involvement and Participation (PIP) Implementation Team
2	Meet with MDEQ to further evaluate the early coordination procedure.		
3	Review options with appropriate MDOT and MDEQ entities and make a recommendation for approval. Update manuals and issue staff guidance accordingly.	By August 1, 2005 [Completed]	
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Develop procedure for coordinating with MDEQ on initial design projects.	By August 1, 2005 [Completed]	PIP Team
2	Train design staff with storm water responsibilities.	By August 1, 2007 [Completed]	Region Permitting, Planning, and TSC Design Staff
3	All projects triggering early coordination with the MDEQ-Water Bureau as described in the Early Coordination for Post-Construction BMPs Procedure will seek involvement from appropriate regulatory agencies.	By 2007 Scoping Process [On-going]	Cost/Sched. Engineer, Region Permitting, Planning, and TSC Design Staff

Activity C-5: Review Projects with Storm Water Discharges to Water Bodies with a Promulgated Total Maximum Daily Load (TMDL)

Affected Party: MDOT Maintenance, Planning and Design, Traffic & Safety, Maintenance Environmental Team (MET), MS4 Team and TSC Staff

Objective: To develop a procedure to review projects with storm water discharges to water bodies with a promulgated TMDL and to and implement storm water controls statewide to meet responsibilities established by TMDLs to the MEP.

Annual Reporting: Track location of projects, location of TMDL waters and how MDOT complied with TMDL requirements.

Related Activities: Activity A-1 - Program Assessment and Reporting; Activity C-2 - Coordinate with MPOs; Activity C-4 - MDEQ Early Coordination; Activity C-8 - Update Drainage Manual

Permit Requirement: Part I.B.paragraph 2: If a water body has a TMDL, the appropriate water quality requirements for that pollutant may be defined in the TMDL. In that event, MEP includes, but is not limited to, the development, implementation and enforcement of storm water controls designed to meet the permittee's responsibilities established by the TMDL. Any reduction achieved through implementation of controls in accordance with Part I.B. of this permit shall count toward compliance with the waste load allocation of the TMDL.

No.	Interim Milestones	Schedule	Responsible
1	A mapping system will be posted on the Storm Water Web site with the new maps showing outfalls investigated as part of dry weather screening.	By June 1, 2006 [Completed]	Consultant
2	Evaluate various options to review projects discharging to TMDL water bodies.	By October 1, 2004 [Completed]	PIP Team
3	Review options with appropriate MDOT entities.		
4	Make a recommendation for approval.		
5	Lay out a detailed framework for the approved procedure.	By June 1, 2006	
6	Document procedure and issue staff guidance.		
7	Review manuals and update accordingly.	February 1, 2007	
8	Notify appropriate staff of changes to manuals.		
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Review all new projects that discharge to waters of the state with a promulgated TMDL.	By April 1, 2005 [Completed]	MDOT Planning, Design, and TSC Staff

Activity C-6: Implement Procedures to Select, Apply, and Maintain Permanent Best Management Practices for Storm Water Management Activities (Post-Construction)

Affected Parties: MDOT Maintenance, Traffic & Safety, Planning, Design, and Construction Staff and Contractors

Objective: To protect receiving water quality by implementing post-construction BMPs statewide.

Annual Reporting: Track the permanent BMPs selected for earth-disturbing projects using existing databases. Report pollutant discharge reduction based on theoretical BMP performance.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity T-1 - Present Training Modules to Region/TSC Staff
Activity C-1 - Maintenance Requirements for MDOT Permanent Best Management Practices (BMPs)
Activity C-3 - Select, Apply, and Maintain Permanent BMPs
Activity C-8 - Update Drainage Manual

Permit Requirement: Part I.B.4.b(1): Requirements for implementation of BMPs.
Part I.B.4.b(2): Requirements for long-term operation and maintenance of BMPs.
Part I.B.6.a(2): In urbanized areas, structural controls may need to be enhanced if control measures fail to adequately reduce the discharge of pollutants to or from the drainage system.

No.	Interim Milestones	Schedule	Responsible
1	Upon having a BMP selection, application, and maintenance procedure in place (see Activity C-3), add procedural information to training modules.	By August 1, 2007 [Modified] *By August 1, 2008*	MDOT Planning, Design Staff
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Train design staff with storm water responsibilities on applying the permanent BMP procedure.	By April 1, 2007 [Modified] *By December 1, 2008*	MDOT Planning, Design Staff
2	Implement procedure to select, apply, and maintain permanent BMPs.	On-going beginning April 1, 2007 [Modified] *By Jan. 1, 2009*	MDOT Planning, Design, and Maintenance Staff
3	Develop a procedure to estimate pollutant discharge reduction based on theoretical BMP performance. [*This is to be implemented as part of the Post Construction BMP Base-Line Inspections.*]	By December 1, 2007 On-going	Post-Const. Team
4	BMPs will be modified, replaced, or enhanced if they are not properly installed, maintained, and/or applied for pollutant control.	As needed beginning Jan. 1, 2008 On-going	MDOT Planning, Design, and Maintenance Staff

Activity C-7: Internal Quality Assurance/Quality Control (QA/QC) Protocol for Construction Storm Water Control

Affected Parties: MDOT Construction & Technology (C&T), Planning, Design, and Maintenance Supervisors

Objective: To improve the effectiveness of temporary BMPs statewide through internal QA/QC for construction storm water control.

Description: Development of the QA/QC protocol is underway and will be submitted to EC for approval.

Annual Reporting: Track number and result of internal reviews and actions taken per procedure.

Related Activities: Activity A-1 - Program Assessment and Reporting
Activity T-3 - Train Staff Responsible for Administering Part 91 and those having Decision Making Authority for SESC Plan Development or Review, Inspections, or Enforcement; and Storm Water Operators as Required under Part 31

Permit Requirement: Part I.B.5.a: MDOT shall meet the following requirements on MDOT construction sites statewide, but may rely on their SESC Plan and the State of Michigan's Permit by Rule to the extent that those controls meet the requirements: 1) Implement soil erosion and sedimentation controls. 2) Control demolition and construction waste materials, concrete truck washout, chemicals, litter, and sanitary waste at construction sites that may cause adverse impacts to water quality. 3) Consider potential water quality impacts during road construction plan reviews. 4) Inspect sites to assure pollution control measures are appropriate.

No.	Interim Milestones	Schedule	Responsible
1	Develop draft QA/QC protocol.	By December 31, 2005 [Completed]	SESC Team, Design, Planning and Maintenance
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Develop a QA/QC protocol for construction storm water control.	May 1, 2006 [Completed]	SESC Team
2	Inspect all sites disturbing at least one acre.	Per the SESC Manual [On-going]	Part 91 Inspector
3	Follow up on all deficiencies noted in site inspections within the specified time frame.	[On-going]	Part 91 Inspector and Engineer

Activity C-8: Periodically Update Drainage Manual

Affected Party: MDOT Design, Construction & Technology and Region/TSC Staff

Objective: To update MDOT's policies and procedures for the design of drainage facilities by reviewing and revising MDOT's Drainage Manual as needed to include the latest details of the storm water management program.

Annual Reporting: Track changes made to the Drainage Manual

Related Activity: Activity A-1 - Program Assessment and Reporting
Activity C-4 - MDEQ Early Coordination
Activity C-5 - Storm Water Discharges to TMDL Water Bodies
Activity C-6 - Implement Procedures to Select, Apply, Maintain Permanent BMPs
Activity C-3 - Procedure to Select, Apply, Maintain Permanent BMPs

Permit Requirement: Part I.B.6.a(1): Routine maintenance on structural controls.
Part I.B.5.a(2): Control demolition and construction waste materials, concrete truck washout, chemicals, litter, and sanitary waste at construction sites that may cause adverse impacts to water quality.
Part I.B.4.c: Develop and implement a process for review of BMPs.

No.	Measurable Goals	Schedule	Responsible
1	Assess the need to update the Drainage Manual.	Annually beginning April 1, 2005 [On-going]	MDOT Design (Hydraulics) Staff
2	Update the Drainage Manual. Changes to manual must be approved by the Engineering Operations Committee (EOC).	As needed. [On-going]	
3	Notify appropriate staff of changes to the manual.		

Activity C-9: Documentation and Tracking of Road Maintenance Activities

Affected Party: MDOT Maintenance Staff, MARS Team, Maintenance Environmental Team (MET), and Contract Agencies

Objective: MDOT roadways will be operated and maintained and storage facilities will be constructed to reduce pollutants washing into surface waters statewide.

Annual Reporting:

- Estimate actual quantity of salt used for de-icing versus maximum calculated amount based on Maintenance Performance Guide 14100.
- Track hours of street sweeping and catch basin cleaning conducted.

Related Activity: Activity A-1 - Program Assessment and Reporting
Activity C-1 - Maintenance Requirements for MDOT Permanent BMPs

Permit Requirement: Part I.B.6: Ensure MDOT employees maintain and follow proper pollution prevention controls.
Part I.B.6.a(1): Describe and implement procedures for proper disposal of operation and maintenance waste.
Part 1.B.6.b(1):Construct, operate, and maintain surfaces statewide to reduce discharge of pollutants into system. Salt and sand applied for improved traction shall be prevented from entering receiving streams to the maximum extent practicable.
Part 1.B.6.b(1) Good Housekeeping implemented at salt and sand storage facilities.
Part I.B.6.b(2): Maintain existing street cleaning and catch basin maintenance activities.

No.	Measurable Goals	Schedule	Responsible
1	Investigate how to track contracted road maintenance activities. ~~using a pilot study with a county.~~ In the interim, discuss maintenance activities in terms of hours of labor.	By April 1, 2007 [Modified] *By Dec. 1, 2008*	Pollution Prevention & Good Housekeeping (PP&GH) Team, Maintenance Staff, Contract Agency
2	20,000 hours of street sweeping will be completed annually.	Annually	Maintenance Staff, Contract Agency
3	23,000 hours of catch basin cleaning will be completed annually.	Annually	Maintenance Staff, Contract Agency

Activity C-10: Procedure for Outfall Labeling

Affected Parties: MDOT Construction & Technology and Maintenance Staff

Objective: MDOT will provide permanent identification for all outfall structures installed after April 1, 2006 statewide.

Annual Reporting:

- Track the location and size of outfalls not labeled between April 1, 2005 and April 1, 2006.
- Track the location and size of outfalls labeled.

Related Activity: Activity A-1 - Program Assessment and Reporting
Activity T-1 - Training Modules to the Job-Related Public
Activity I-5 - Map Known Outfalls
Activity C-8 - Update Drainage Manual

Permit Requirement: Part I.B.6.c: Provide permanent identification of outfalls installed after April 1, 2005 that discharge directly into waters of the state. The primary operator of the drainage system shall be readily identifiable by observation of the outfall.

No.	Interim Milestones	Schedule	Responsible
1	Assess various procedures for labeling outfalls.	By January 31, 2005 [Completed]	SESC Team
2	Review procedures with appropriate MDOT entities and make a recommendation for approval.		
3	Develop a special provision for labeling.	By April 1, 2005 [Completed]	
4	Document procedure and issue staff guidance.		
5	Review and update manuals accordingly.		
6	Notify appropriate staff of changes to manuals.		
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Develop procedure for labeling all new outfall structures statewide.	By April 1, 2005 [Completed]	SESC Team
2	All new outfall structures will be labeled and maintained statewide.	Starting April 1, 2006 [Completed]	MDOT C & T and Maintenance Staff

Activity C-11: Review Flow Control Structures

Affected Party: MDOT Design and Planning Staff

Objective: MDOT will ensure that new flow control structures in urbanized areas assess impacts on water quality and whenever possible will examine existing flow control structures for inclusion of water quality BMPs to the MEP.

Description: MDOT is currently reviewing all new flow control structures as part of environmental clearance and will continue to do so. Existing flow control structures will be examined whenever possible.

Annual Reporting: Number of flow control structures reviewed and water quality benefits gained based on the theoretical pollutant removal rates.

Related Activity: Activity A-1 - Program Assessment and Reporting
Activity C-3 - Procedure to Select, Apply, and Maintain Permanent BMPs for Storm Water Management Activities (Post-Construction)

Permit Requirement: Part I.B.4.c: Develop and implement a process for review of BMPs.
Part I.B.6.d: Ensure new storm water flow management projects assess impacts of water quality on the receiving water and, whenever possible, examine existing projects for incorporation of water quality protection.

No.	Measurable Goals	Schedule	Responsible
1	All new flow control structures will be reviewed for inclusion of water quality BMPs.	Beginning August 1, 2005	MDOT Planning Specialists and Post-Const team
2	All new flow control structures will be evaluated for water quality benefit based on the theoretical pollutant removal rate.	Beginning April 1, 2006 [Modified] *December 31, 2008*	
3	Maintenance requirements for existing water quality controls having a water quality benefit will be developed to the maximum extent practicable.	December 31, 2007 [On-going]	
4	Applicable MDOT Staff will be trained to review new and existing flow control structures.	By April 1, 2007 [Modified] *December 31, 2008*	

Activity C-12: Audit the Pollution Incident Prevention Plan (PIPP) Requirements

Affected Party: MDOT Maintenance Staff, Region Resource Analyst/Specialist, Region/TSC Storm Water Coordinator, and Safety & Homeland Security

Objective: Assure that vehicle maintenance activities statewide do not pollute storm water runoff to the maximum extent practicable.

Description: Internal auditing of the PIPP is already conducted and implemented.

Annual Reporting:

- Summary of PIPP audits
- Document new programs, policies, procedures and information.

Related Activity: Activity A-1 - Program Assessment and Reporting
Activity T-1 - Training Modules to the Job-Related Public
Activity C-1 - Maintenance Requirements for MDOT Permanent BMPs

Permit Requirement: Part 1.B.6.: Ensure MDOT employees maintain and follow proper pollution prevention controls.
Part 1.B.6.a(1): Routine maintenance on structural controls.
Part 1.B.6.a(2): If necessary, enhance structural controls and cleaning schedules for adequate pollutant control.
Part 1.B.6.e.: Assure vehicle maintenance activities do not pollute storm water runoff.

No.	Measurable Goals	Schedule	Responsible
1	Conduct an audit of the PIPP requirements every three years.	Beginning April 1, 2006	Region Resource Analyst/Specialist, Region /TSC Storm Water Coordinator, or Safety & Homeland Security, PP&GH Team
2	Follow-up on any delinquent plan requirements and revise appropriately.	As needed.	
3	Formally accept the changes made to the PIPP.		

Activity A-1: Program Assessment and Reporting

Affected Party: MDOT employees involved with the storm water program.

Objective: To assess and report on the status of the MDOT Storm Water Management Plan (SWMP) on an annual basis through compiling measurable goal data, perform program assessment, review auditing activities, and prepare annual report.

Description: Conduct a yearly program assessment of the MDOT Storm Water Program and conduct annual reporting.

Annual Reporting:

- Track and document SWMP activities.
- Complete annual progress report.
- Conduct evaluation of program and make changes as needed.

Related Activities: All Activities

Permit Requirement: Part I.C: Program Assessment and Reporting

No.	Interim Milestones	Schedule	Responsible
1	Develop tracking protocol for entire plan to combine tracking and reporting for each activity. Coordinate with existing databases.	By April 1, 2006 [On-going]	Implementation Teams as appropriate
2	Review and test tracking program.	By April 1, 2007	
3	Compile data and draft the annual report.	Annually beginning February 1, 2005 [On-going]	Consultant
4	Review the overall status of implementation of the SWMP to assure compliance with its requirements.		MDOT Storm Water Program Manager
5	Review interim milestones and measurable goals for applicability. Revise measurable goals and milestones as needed.		Implementation Teams, Storm Water Program Manager
6	Review annual budget and revise fiscal analysis if necessary.		
7	Review the annual progress report. Provide comments and assure its accuracy.		Implementation Teams. Storm Water Program Manager
8	Conduct the final review of the annual report and issue approval for submitting to MDEQ		MDOT EC
No.	**Measurable Goals**	**Schedule**	**Responsible**
1	Submit annual reports to MDEQ.	By April 1 of each year [On-going]	Storm Water Program Mgr.
2	All tracking information for the previous year will be complete and accessible for inclusion in the annual report.	By January 2 of each year. [On-going]	Consultant, Storm Water Program Mgr.

Appendix B

MDOT-Sponsored Education and Outreach

Appendix B.1 Training, Conferences, and Event Database
January 1, 2007 to December 31, 2007

PUBLIC EDUCATION

Name or Title of Meeting/Presentation	Date of Presentation /Meeting	Name of Presenter/Responsible Party	No. of Attendees/Number Reached	Education Activity*	Region: Bay	University	Grand	Metro	North	Southwest	Superior	Audience: Permits	Executives	Design Staff	Construction Staff	O&M Staff	Planning & Development Staff	Contractors - Maintenance	Contractors – Construction	Government (County)	General Public	General Public - Children	Tetra Tech Employees or Road Crew	Unknown MDOT Department
SW Education Booth - Annual Asphalt Paving Conference and Equipment Show, DeVos Place Grand Rapids	2/7-8/2007	MDOT		PEM																				
5th Annual Earth Fair (trash bags, brochures, pens, pads, etc.)	4/13-14/2007	St Clair County Drain Commission	1500	PEM																	1000	500		
SEMCOG Assistance in Street Maintenance Fact Sheets	2007	MDOT Maintenance		PEM												X		X						
Livingston County Watershed Group Meetings		Bob Batt		SW																				
Grayling Watershed Group Meetings		Coreen Strzalka		SW																				
SESC Pocket Guide/Poster for Purchase	10/1/2007	MDOT	500	PEM															X					
Wayne County Public Library - kids display circulation	2007-2008	MDOT		PEM																	X	X		
		Total	2000		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	500	0	0

2006 New Materials	Date Created	Intended Audience
SESC & Pollution Prevention Pocket Guide	Jan-07	MITA attendees, contractors, TSC staff

Other Agencies Borrowing Materials	Date	Materials Shared
Chris Masin, Shelby Co., TN; chris.masin@shelbycountytn.gov; 901.545.4086	2/22/2007	kids flyer, litter bag
Thomas Munn, Hudson, OH, TMunn@hudson.oh.us	3/8/2007	IDEP Interactive Demo (Website)
Amy Pond, Warren Co., OH Soil Cons. Dist.;amypond77@yahoo.com	4/10/2007	kids flyer and water drops (1000 copies)
Annie Huff, Henry County Storm Water Program, ahuff@co.henry.ga.us	11/13/2007	CD of various materials
Bob Pilot, Niles IL, 847-588-7926	11/13/2007	IDEP Brochure
Weslie Boyd, WV Local Technical Assistance Program, weslie.boyd@mail.wvu.edu	12/12/2007	Permission to print

*Education Activity Key
CT - Conferences and Trainings
PEM - Public Education Materials/News Articles
SW - Storm Water Related Meetings

Appendix B.1 Training, Conferences, and Event Database
January 1, 2007 to December 31, 2007

Pollution Prevention/Good Housekeeping

Name or Title of Meeting/Presentation	Date of Presentation /Meeting	Name of Presenter/Responsible Party	No. of Attendees/Number Reached	Education Activity*	Region							Audience													
					Bay	University	Grand	Metro	North	Southwest	Superior	Permits	Executives	Design Staff	Construction Staff	O&M Staff	Planning & Development Staff	Contractors - Maintenance	Contractors – Engineers & Traffic	Government (County)	General Public	General Public - Children	Tetra Tech Employees or Road Crew	Unknown MDOT Department
Maintenance Garage Pollution Prevention LTAP article-Part 1	Winter 2007	MDOT		PEM																X					
Maintenance Garage Pollution Prevention LTAP article-Part 2	Winter 2007	MDOT		PEM																X					
Pesticide Training	April 11 and 12, 2007	Darwyn Heme	76	CT												X		X							
PIPP Audits - Bay Region		Cary Rouse		I	X																				
Maintenance Garage Inspection	5/1/2007	Bob Batt		I		X																			
Michigan Concrete Association ready-mix plant article	Summer 2007	MDOT		PEM															X						
Maintenance Garage Inspections - all 12 in region	Fall 2007	Chris Vera		I						X															
		Total	76		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Education Activity Key
CT - Conferences and Trainings
PEM - Public Education Materials/News Articles
SW - Storm Water Related Meetings
I - Inspection

Appendix B.1 Training, Conferences, and Event Database
January 1, 2007 to December 31, 2007

Illicit Discharge Elimination Program (IDEP)

Name or Title of Meeting/Presentation	Date of Presentation /Meeting	Name of Presenter/Responsible Party	No. of Attendees/Number Reached	Education Activity*	Region							Audience															
					Bay	University	Grand	Metro	North	Southwest	Superior	Permits	Lansing	Design Staff	Construction Staff	O&M Staff	Planning & Development Staff	Cost & Scheduling	Contractors - Maintenance	Contractors – Engineers & Traffic	Government (County)	General Public	General Public - Children	Tetra Tech Employees or Road Crew	Unknown MDOT Department
IDEP Module Training	3/7/2007	Dan Hamlin	12	CT							X			X			X	X								
IDEP Module Training - Marshall TSC	5/8/2007	Nick VanWoert	17	CT						X				X	X	X										
IDEP Module Training - Lead Workers Meeting	5/16/2007	Nick VanWoert	32	CT						X						X										
		Total	61		0	0	0	0	0	49	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Education Activity Key
CT - Conferences and Trainings
PEM - Public Education Materials/News Articles
SW - Storm Water Related Meetings

Appendix B.1 Training, Conferences, and Event Database
January 1, 2007 to December 31, 2007

Post Construction Storm Water Management Practices

Name or Title of Meeting/Presentation	Date of Presentation /Meeting	Name of Presenter/Responsible Party	No. of Attendees/Number Reached	Education Activity*	Region							Audience													
					Bay	University	Grand	Metro	North	Southwest	Superior	Permits	Lansing	Design Staff	Construction Staff	O&M Staff	Planning & Development Staff	Contractors - Maintenance	Contractors – Engineers & Traffic	Government	General Public	General Public - Children	Tetra Tech Employees or Road Crew	Unknown MDOT Department
MDOT/ACEC Partnerting Conf. - BMP Breakout Session (3)	2/1/2007	Dan Christian, Tetra Tech	240	CT										X					X						
Early Coordination article in MDOT Topics Newsletter	4/1/2007	Bethany Matousek		PEM										X			X								
NCHRP Committee	2007	Judy Ruszkowski		PEM																					
LID Manual Committee (SEMCOG)	2007	Judy Ruszkowski		PEM																X					
LTAP article- MDOT's support of post-construction BMPs	Fall 2007	MDOT		PEM																					
Early Coordination lectures to TSCs	Winter/Spring 2007	Bethany Matousek		CT	X	X	X	X	X	X	X			X			X								
		Total	240		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Education Activity Key
CT - Conferences and Trainings
PEM - Public Education Materials/News Articles
SW - Storm Water Related Meetings

Appendix B.1 Training, Conferences, and Event Database
January 1, 2007 to December 31, 2007

Soil Erosion and Sedimentation Control

Name or Title of Meeting/Presentation	Date of Presentation /Meeting	Name of Presenter/Responsible Party	No. of Attendees/Number Reached	Education Activity*	Region							Audience													
					Bay	University	Grand	Metro	North	Southwest	Superior	Permits	Lansing	Design Staff	Construction Staff and Contractors	O&M Staff	Planning & Development Staff	Contractors - Maintenance	Contractors – Engineers & Traffic	Government (County)	General Public	General Public - Children	Tetra Tech Employees or Road Crew	Unknown MDOT Department
Pre-construction Activities MITA article	Spring 2007	MDOT		PEM											X										
SESC Training - Hastings Maintenance Garage	8/9/2007	Nick VanWoert	6	CT						X						X									
		Total	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Education Activity Key
CT - Conferences and Trainings
PEM - Public Education Materials/News Articles
SW - Storm Water Related Meetings

MDOT Public Web Site Tracking Database
January 1, 2007-December 31, 2007

Pages	Web Link	1/1/07 - 1/31/07	2/1/07 - 2/28/07	3/1/07 - 3/31/07	4/1/07-4/30/07	5/1/07-5/31/07	6/1/07-6/30/07	7/1/07-7/31/07	8/1/07-8/31/07	9/1/07-9/30/07	10/1/07-10/31/07	11/1/07-11/30/07	12/1/07-1231/07	Total # Visits
Home Page	http://www.michigan.gov/stormwatermgt	418	323	356	412	510	421	373	525	453	663	486	0	4,940
MDOT's Current Storm Water Management Programs	http://www.michigan.gov/stormwatermgt/0,1607,7-205--93182--,00.html	55	50	45	39	91	76	83	93	79	76	49	28	764
Click On DOT For A Storm Water Message	http://www.michigan.gov/documents/MDOT_MS4_DOT_MOVIE_POPUP_151947_7.htm	56	42	27	23	57	71	60	67	52	59	35	12	561
MDOT Storm Water Web Site Survey	http://www.michigan.gov/stormwatermgt/0,1607,7-205--91826--,00.html	21	12	28	13	58	54	43	39	45	39	21	18	391
Communities	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097---,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Phase II Communities Alphabetically	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-93018--,00.html	13	17	55	9	19	23	25	128	97	209	92	34	721
Phase II Communities Sorted By Urbanized Area (UA)	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92922--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Ann Arbor	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92892--,00.html	0	1	0	1	2	1	4	8	3	5	1	1	27
Battle Creek	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92893--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Bay City	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92887--,00.html	0	1	0	1	3	1	3	5	1	3	1	0	19
Benton Harbor/St. Joe	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92894--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Detroit	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92895--,00.html	0	2	1	1	2	2	9	9	14	20	6	9	75
Elkhart, IN-MI	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92896--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Flint	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92897--,00.html	0	3	0	0	2	1	3	5	2	2	1	3	22
Grand Rapids	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92898--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Holland	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92899--,00.html	0	1	0	0	4	4	4	5	1	3	1	1	24
Jackson	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92900--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Kalamazoo	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92901--,00.html	1	1	0	0	1	1	5	5	1	2	1	1	19
Lansing	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92902--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Michigan City, IN-MI	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92903--,00.html	0	1	0	0	1	1	3	5	2	0	1	0	14
Monroe	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92904--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Muskegon	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92905--,00.html	1	1	0	0	4	1	3	5	1	1	2	1	20
Port Huron	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92906--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Saginaw	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92907--,00.html	1	1	0	0	1	2	4	5	1	5	2	0	22
South Bend	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92908--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
S. Lyon-Howell-Brighton	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92910--,00.html	0	1	0	0	1	1	4	6	4	6	2	2	27
Toledo	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92911--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Metropolitan Planning Organizations	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30097-92943--,00.html	2	6	7	7	20	18	10	16	20	14	12	5	137
Illicit Discharge	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30100---,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Resources	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30101---,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Phase II Storm Water Management Plan	http://www.michigan.gov/stormwatermgt/0,1607,7-205--114322--,00.html	28	25	23	24	58	76	58	70	74	66	43	28	573
2004 Annual Report	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30101-140191--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage Manual	http://www.michigan.gov/stormwatermgt/0,1607,7-205--93193--,00.html	441	387	446	430	476	434	377	461	448	563	365	269	5,097
Phase I Storm Water Management Plan	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30101-93181--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
2003 Annual Report	http://www.michigan.gov/stormwatermgt/0,1607,7-205--93101--,00.html	1	0	0	0	0	0	0	1	0	0	0	0	2
2002 Annual Report	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30101-93161--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
2005 Annual Report	http://www.michigan.gov/stormwatermgt/0,1607,7-205--140179--,00.html	20	17	10	4	1	1	0	0	3	0	0	0	56
Best Management Practices	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30102---,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Structural BMPs	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30102-92963--,00.html	39	52	33	36	46	42	40	51	58	45	38	35	515
Vegetative BMPs	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30102-92965--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Operational BMPs	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30102-92975--,00.html	18	26	13	11	25	23	18	27	25	24	15	14	239
Education	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30103---,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Public Education	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30103_30478---,00.html	77	94	62	84	90	117	84	126	99	116	91	40	1,080
MDOT Employee and Contractor Education	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30103_30373---,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
The MDOT Storm Water Internal Training Modules	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30103_30373-93136--,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Links	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30104---,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Contacts														0
Full Community Contacts List	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30105---,00.html	27	24	19	25	60	59	56	63	48	68	33	14	496
MS4 Committee Contact List	http://www.michigan.gov/stormwatermgt/0,1607,7-205-30105_31663---,00.html	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Number of Site Downloads Per Month		1219	1088	1125	1120	1532	1430	1269	1725	1531	1989	1298	515	15,841

MDOT Public Web Site Tracking Database
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	1/1/07 - 1/31/07 Page Views	2/1/07 - 2/28/07 Page Views	3/1/07 - 3/31/07 Page Views	4/1/07 - 4/30/07 Page Views	5/1/07 - 5/31/07 Page Views	6/1/07 - 6/30/07 Page Views	7/1/07 - 7/31/07 Page Views	8/1/07 - 8/31/07 Page Views	9/1/07 - 9/30/07 Page Views	10/1/07 - 10/31/07 Page Views	11/1/07 - 11/30/07 Page Views	12/1/07 - 12/31/07 Page Views	Row Total
Drainage Manual													
/documents/mdot_ms4_app_91722_7._04_a_drainage_manual.pdf	10	8	14	11	18	5	13	14	12	10	4	3	**122**
/documents/mdot_drainage_chapter5_app_d_157107_7.pdf	40	23	28	20	24	19	25	32	15	30	12	15	**283**
/documents/mdot_ms4_app__2_d__attachment_c_drainage_manual_94976_7.pdf	11	10	12	13	25	8	14	10	13	18	6	11	**151**
/documents/mdot_ms4_app_5_c_drainage_manual_94993_7.pdf	132	125	144	162	113	132	102	91	64	123	86	66	**1340**
/documents/mdot_ms4_app_91706_7._02_a_drainage_manual.pdf	21	25	19	15	26	15	17	17	25	27	17	10	**234**
/documents/mdot_ms4_app_91709_7._02_b_drainage_manual.pdf	7	7	15	11	28	8	15	16	18	24	13	9	**171**
/documents/mdot_ms4_app_91710_7._02_c_drainage_manual.pdf	13	10	17	12	26	17	19	10	22	11	12	10	**179**
/documents/mdot_ms4_app_91711_7._02_d_drainage_manual.pdf	62	45	54	74	77	33	55	52	52	44	21	51	**620**
/documents/mdot_ms4_app_91713_7._02_e_drainage_manual.pdf	13	13	19	21	34	26	28	21	25	25	12	11	**248**
/documents/mdot_ms4_app_91714_7._02_f_drainage_manual.pdf	14	11	23	17	16	2	28	11	18	21	12	22	**195**
/documents/mdot_ms4_app_91717_7._03_a_drainage_manual.pdf	22	16	15	17	21	18	29	16	18	19	13	12	**216**
/documents/mdot_ms4_app_91718_7._03_b_drainage_manual.pdf	92	111	103	90	92	87	67	74	83	81	49	54	**983**
/documents/mdot_ms4_app_91719_7._03_c_drainage_manual.pdf	37	49	51	43	59	36	75	65	107	41	48	29	**640**
/documents/mdot_ms4_app_91720_7._03_d_drainage_manual.pdf	32	43	66	47	55	48	56	29	50	98	38	28	**590**
/documents/mdot_ms4_app_91723_7._04__b_drainage_manual.pdf	18	18	26	12	21	18	22	13	18	16	15	12	**209**
/documents/mdot_ms4_app_91724_7._04_c_drainage_manual.pdf	92	62	82	119	133	60	59	62	65	122	93	89	**1038**
/documents/mdot_ms4_app_91726_7._05_a_drainage_manual.pdf	24	20	24	17	25	20	18	19	13	16	14	13	**223**
/documents/mdot_ms4_app_91727_7._05_b_drainage_manual.pdf	119	120	120	133	122	88	107	109	99	119	110	98	**1344**
/documents/mdot_ms4_app_91731_7._06_a_drainage_manual.pdf	12	9	16	11	17	4	11	8	10	6	4	5	**113**
/documents/mdot_ms4_app_91732_7._06_b_drainage_manual.pdf	17	15	12	7	14	1	9	10	18	7	4	7	**121**
/documents/mdot_ms4_app_91733_7._06_c_drainage_manual.pdf	27	29	22	18	32	14	30	12	18	13	7	12	**234**
/documents/mdot_ms4_app_91734_7._06_d_drainage_manual.pdf	30	34	49	33	48	21	30	18	35	42	30	30	**400**
/documents/mdot_ms4_app_91736_7._07_a_drainage_manual.pdf	18	23	21	21	29	12	17	21	20	19	17	6	**224**
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/documents/mdot_ms4_app_91743_7._09_b_drainage_manual.pdf	20	15	23	24	29	21	14	14	19	27	10	16	**232**
/documents/mdot_ms4_app_91746_7._10_b_drainage_manual.pdf	159	233	274	221	322	245	287	276	314	380	270	234	**3215**
/documents/mdot_ms4_chap_91703_7._01_drainage_manual.pdf	71	72	73	55	78	41	54	52	58	64	46	48	**712**
/documents/mdot_ms4_chap_91704_7._02_drainage_manual.pdf	55	50	73	63	83	40	40	52	64	54	24	20	**618**
/documents/mdot_ms4_chap_91716_7._03_drainage_manual.pdf	115	120	117	135	165	99	112	104	145	132	153	123	**1520**
/documents/mdot_ms4_chap_91721_7._04_drainage_manual.pdf	113	167	162	192	197	228	136	138	138	121	147	98	**1837**
/documents/mdot_ms4_chap_91725_7._05_drainage_manual.pdf	246	255	213	242	306	334	234	211	143	235	188	198	**2805**
/documents/mdot_ms4_chap_91730_7._06_drainage_manual.pdf	57	54	63	56	75	37	30	71	57	68	52	43	**663**
/documents/mdot_ms4_chap_91735_7._07_drainage_manual.pdf	327	347	436	416	469	369	275	327	466	373	290	234	**4329**
/documents/mdot_ms4_chap_91738_7._08_drainage_manual.pdf	165	185	235	220	222	490	158	203	313	236	196	132	**2755**
/documents/mdot_ms4_chap_91740_7._09_drainage_manual.pdf	73	86	110	71	73	60	71	77	81	97	50	85	**934**
/documents/mdot_ms4_chap_91744_7._10_drainage_manual.pdf	134	139	245	200	220	165	146	126	222	367	224	325	**2513**
/documents/mdot_ms4_cover_acknowledgements_drainage_manual_91702_7.pdf	25	32	22	41	41	30	23	29	28	31	15	13	**330**
/documents/mdot_ms4_glossary_drainage_manual_91747_7.pdf	67	80	99	109	180	85	66	106	112	57	100	54	**1115**
/documents/mdot_ms4_master_toc_drainage_manual_91748_7.pdf	58	69	62	73	74	62	79	50	52	65	57	39	**740**
/documents/mdot_ms4_app_91741_7._09_a_drainage_manual.pdf	12	9	7	7	16	5	9	8	11	7	4	4	**99**
/documents/mdot_ms4_app_91745_7._10_a_drainage_manual.pdf	11	7	13	6	17	3	9	10	12	10	3	6	**107**
Storm Water Management Plan													
/documents/swmp_05_mdot_v_4_120613_7.0_appendix_g.pdf	238	103	488	181	295	392	300	417	249	485	280	140	**3568**
/documents/mdot_ms4_app_91692_7._b_phase_i_swmp.pdf	6	6	12	33	16	22	15	9	4	21	14	16	**174**
/documents/mdot_ms4_app_91695_7.d_phase_i_swmp.pdf	15	16	18	45	75	69	19	24	26	26	12	9	**354**
/documents/mdot_ms4_app_91697_7._a-d_phase_i_swmp.pdf	8	21	10	43	101	58	30	7	4	13	3	7	**305**
/documents/mdot_ms4_chp_11_phase_i_swmp_91689_7.pdf	5	16	3	11	39	12	24	24	7	9	2	9	**161**
/documents/mdot_ms4_final_phase_ii__permit_91260_7.pdf	10	14	7	20	39	31	32	40	27	28	23	34	**305**
/documents/mdot_ms4_full_version_phase_i_swmp_91696_7.pdf	6	17	30	5	19	19	7	16	0	12	1	10	**142**
/documents/stormwater_management_plan_162028_7.pdf	2	3	13	3	3	12	6	3	1	3	0	0	**49**
/documents/stormwatermgt/mdot_ms4_appendix_c__pip_191965_7.pdf	0	0	0	10	6	2	3	4	0	4	0	0	**29**
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/documents/mdot_ms4_app_91693_7.c_phase_i_swmp.pdf	5	1	3	1	6	0	1	10	0	2	0	0	**29**
/documents/mdot_ms4_chp_00_phase_i_swmp_91675_7.pdf	5	2	7	2	8	4	11	16	3	5	4	1	**68**
/documents/mdot_ms4_chp_01_phase_i_swmp_91677_7.pdf	4	1	7	0	2	2	4	6	8	1	2	0	**37**
/documents/mdot_ms4_chp_02_phase_i_swmp_91678_7.pdf	3	7	6	3	3	8	14	5	3	6	2	2	**62**
/documents/mdot_ms4_chp_03_phase_i_swmp_91681_7.pdf	4	4	7	2	3	6	4	17	3	5	2	0	**57**
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/documents/mdot_ms4_chp_09_phase_i_swmp_91687_7.pdf	4	7	11	3	7	10	23	13	2	0	1	3	**84**
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/documents/swmp_04_mdot_v_3_109357_7.0_chap_8.pdf	0	0	0	2	0	0	0	0	0	0	0	0	**2**
/documents/swmp_04_mdot_v_3_109366_7.0_chap_10.pdf	0	0	0	0	5	0	1	0	0	0	0	0	**6**
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/documents/swmp_04_mdot_v_3_109372_7.0_appendix_f.pdf	0	0	3	7	0	62	0	0	0	0	0	0	**72**
/documents/swmp_05_mdot_v_4_120606_7.0_appendix_a.pdf	9	9	10	12	12	17	8	11	9	9	1	3	**110**
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/documents/swmp_05_mdot_v_final_chap_8_120624_7.pdf	11	1	20	17	9	20	9	10	18	15	17	0	**147**

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	1/1/07 - 1/31/07 Page Views	2/1/07 - 2/28/07 Page Views	3/1/07 - 3/31/07 Page Views	4/1/07 - 4/30/07 Page Views	5/1/07 - 5/31/07 Page Views	6/1/07 - 6/30/07 Page Views	7/1/07 - 7/31/07 Page Views	8/1/07 - 8/31/07 Page Views	9/1/07 - 9/30/07 Page Views	10/1/07 - 10/31/07 Page Views	11/1/07 - 11/30/07 Page Views	12/1/07 - 12/31/07 Page Views	Row Total
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/documents/swmp_05_mdot_v_final_toc_120627_7.pdf	25	22	20	12	20	11	18	13	13	16	3	4	177
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Public Education Materials													
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/documents/mdot_ms4_1_training_module_91556_7.pdf	19	12	5	13	67	23	26	46	14	9	3	23	260
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/documents/mdot_ms4_4_training_module_91560_7.pdf	10	11	8	6	49	20	17	23	13	13	9	6	185
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/documents/mdot_ms4_final_report_rainfall_intensity_91935_7.pdf	35	41	55	21	8	14	15	6	12	7	12	8	234
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/documents/mdot_ms4_what__is__storm__water__runoff_159349_7.pdf	20	25	17	23	40	23	20	32	54	31	23	6	314
/documents/stormwatermgt/mdot_ms4_appendix_a__activity_sheet_191960_7.pdf	0	0	0	8	35	11	23	16	19	19	11	1	143
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/documents/stormwatermgt/mdot_ms4_appendix_e__post_construction_191972_7.pdf	0	0	0	18	35	16	24	24	18	18	28	9	190
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/documents/stormwatermgt/mdot_ms4_appendix_g__sesc_191979_7.pdf	0	0	0	16	31	14	18	26	22	22	9	6	164
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/documents/stormwatermgt/mdot_ms4_local_input_welcome_on_mdot_post_construction_bmps_208455_7.pdf	0	0	0	0	0	0	0	0	0	40	24	9	73
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MDOT Public Web Site Tracking Database
January 1, 2007-December 31, 2007

	1/1/07 - 1/31/07 Page Views	2/1/07 - 2/28/07 Page Views	3/1/07 - 3/31/07 Page Views	4/1/07 - 4/30/07 Page Views	5/1/07 - 5/31/07 Page Views	6/1/07 - 6/30/07 Page Views	7/1/07 - 7/31/07 Page Views	8/1/07 - 8/31/07 Page Views	9/1/07 - 9/30/07 Page Views	10/1/07 - 10/31/07 Page Views	11/1/07 - 11/30/07 Page Views	12/1/07 - 12/31/07 Page Views	Row Total
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Total	4189	4274	5503	5640	8692	7809	7165	7759	6146	7710	5821	4651	75359

Appendix C

Public Involvement and Participation

TOPICS
TRANSPORTATION PLANNING ISSUES & COMMUNICATION SERIES

April 2007

Early coordination with MDEQ Water Bureau part of Storm Water Management Plan

In late December of last year, the MDOT Environmental Committee approved implementation of a new procedure wherein MDOT will coordinate post-construction storm water management design with the Department of Environmental Quality (MDEQ) Water Bureau on select MDOT road projects. The new procedure is being implemented as part of MDOT's Storm Water Management Plan (SWMP) under our statewide National Pollutant Discharge Elimination System (NPDES) permit. This statewide permit is issued by MDEQ Water Bureau under authority of the U.S. Environmental Protection Agency (U.S. EPA) and the federal Clean Water Act. It is designed to protect the waters of the state from environmental impacts associated with increased development and specifically, to mitigate the negative effects of increases in road runoff volume and associated pollutant load.

The NPDES permit allows MDOT to discharge storm water runoff from our roadways to waters of the state provided that the provisions of MDOT's SWMP are met. These provisions include a variety of activities related to six categories which include:

- Education and outreach,
- Public involvement/participation,
- Illicit discharge elimination,
- Post-construction storm water management,
- Construction storm water runoff control, and
- Pollution prevention/good housekeeping for MDOT operations.

Transportation Trivia……

Where was the first full-size subaqueous tunnel built in North America?

Answer on page 4

Over the past five years, MDOT has been increasingly incorporating post-construction storm water Best Management Practices (BMPs) into its roadway project designs. Beginning this year, MDOT will submit project designs for review by MDEQ Water Bureau district staff on projects that meet certain "triggers". These include projects which disturb an area equal to or greater than one acre and include either a new storm water outfall or a twenty percent increase in the volume of storm water runoff, and which also discharge to a sensitive water body. Sensitive water bodies include designated trout streams and lakes, coldwater lakes, Outstanding State Resource Waters, and water bodies with a promulgated Total Maximum Daily Load (TMDL) for certain pollutants.

A primary goal of the new procedure is to determine the need for post-construction storm water management during the scoping process. Early identification of the need for storm water BMPs will provide project managers with a more accurate idea of project funding needs, particularly if right of way is necessary, prior to selecting projects for the five year call.

Meetings are currently being scheduled with each region to discuss implementation of the new Early Coordination Procedure. To obtain a copy or for questions regarding this procedure, MDOT's NPDES permit, Storm Water Management Plan, or post-construction BMPs, please call Bethany Matousek, Aquatic Resource Specialist, or Judy Ruszkowski, Storm Water Program Manager. Questions regarding BMP design, sizing, manufacturer's specifications, and trouble shooting can be directed to Coreen Strzalka, Drainage Design Specialist.

Featured Acronym:

PMBOK®

(Find it somewhere in this issue)

Appendix D

Illicit Discharge Elimination Program

1. Dry Weather Screening Investigation Maps (Saved on CD-ROM)
2. Reported Illicit Discharges (Pages D.2-1 to D.2-4)
3. Statewide Outfall Maps (Saved on CD-ROM)
4. 2007 Labeled Outfalls (Pages D.4-1 to D.4-5)
5. Reported Illicit Discharge Correspondence (Pages D.5-1 to D.5-5)

Appendix D.1 Dry Weather Screening Investigation Maps

Refer to CD-ROM

Complaint Summary

Wednesday, November 14, 2007

Complaint #	Region	Date of Observaion	PSD #	PR #	Control Section
1	Southwest	8/21/2006			

Route

Source: ***Name*** Hummel
Address 8304 Maple Grove Rd

Nature of Problem
Two corrugated plastic pipes entering ROW adjacent to headwall. Dark water exiting one of the pipes. Pipe clogged. Once unplugged, water clear.

Status Resolved

Complaint #	Region	Date of Observaion	PSD #	PR #	Control Section
2	Southwest	9/5/2006	577905	80031	

Route
M-140

Source: ***Name*** unknown
Address 39571 M-140

Nature of Problem
pipe entering ditchline opposite headwall. Slight odor. Black color.

Status Resolved

Complaint #	Region	Date of Observaion	PSD #	PR #	Control Section
3	Southwest	11/2/2006		80031	

Route
M-140

Source: ***Name*** Consumers Concrete
Address 13271 M-140

Nature of Problem
concrete slurry/dust entering drainage ditch

Status Resolved

5	Southwest	12/22/2006	21203	39121	

Route
I 94 BL

Source: ***Name***
Address

Nature of Problem
maintenance crews observed oily residue during culvert cleanout

Status Resolved

6	Southwest	8/1/2007		11021	

Route
US-12

Source: ***Name*** Tom Jelinek
Address 8141 West US-12

Nature of Problem
black water with sewage smell found during ditch cleanout operation

Status Unresolved

Complaint #	Region	Date of Observaion	PSD #	PR #	Control Section
7	Southwest	8/1/2007			11021

Route
US-12

Source: ***Name***
Address

Nature of Problem
pipe coming into ditch.

Status Unresolved

Complaint #	Region	Date of Observaion	PSD #	PR #	Control Section
8	Southwest	8/7/2007			11052

Route
Old US 31

Source: ***Name*** Country Acres Mobile Home Court
Address 2615 Old US-31

Nature of Problem
Adjacent property owner on west side of Old 31 complained to garage staff that during sewage overflow events sewage flows into catch basin that leads to MDOT ditch. Also stated that laundry room discharges to catch basin.

Status Resolved

Complaint #	Region	Date of Observaion	PSD #	PR #	Control Section
9	Southwest	8/10/2007		13082	

Route

I-94

Source: ***Name*** Te-Khi Travel Court

Address 15898 11 Mile Rd

Nature of Problem

Maintenance crews smelled stong diesel fuel odor on 8/10/07 when preparing to clean out ditch.

Status Resolved

Appendix D.3 Statewide Outfall Maps

Refer to CD-ROM

Appendix D.5 2007 Labeled Outfalls

Project	Outfall Location
1. M-43, Village of Delton 08011-60507A	Station 275+30, 350 feet left of centerline, 60 inch concrete, labeled with BCDC
2. US-31, Little Traverse Township 24011-79063A	Station 43+07, 140 feet right of centerline, 12 inch concrete
	Station 45+90, 40 feet right of centerline, 18 inch concrete
3. US-23, under Lahring Road 25031-59612A	Station 51+87, 41 feet right centerline, 12 inch CSP
	Station 51+77, 32 feet left of centerline, 12 inch CSP
	Station 48+83, 28 feet right of centerline, 12 inch CSP
	Station 48+75, 28 feet left of centerline, 12 inch CSP
4. M-99, Hillsdale 30032-80682A	Station 181+00, 650 feet right of centerline, 34 inch by 53 inch RECP
5. M-25, over Mud Creek 32012-81073A	Station 1202+58, 42 feet left of centerline, 12 inch CMP
	Station 1202+73, 47 feet right of centerline, 12 inch CMP
	Station 1202+83, 45 feet left of centerline, 24 inch CMP
	Station 1203+00, 48 feet right of centerline, 24 inch CMP
6. M-36, Mason 33021-75198A	Station 247+87, 48 feet right of centerline, approximately 200 feet west of Lawton Street, 42 inch concrete
7. M-44, Belding 34081-60424A	Station 145+55, 71 feet right of centerline, 60 inch concrete
8. US-27 BR, Mt. Pleasant 37011-86635A	Station 535+50, 50 feet left of centerline, 60 inch concrete
9. I-94 and US-131 Interchange 39024-86055A, 86166A, 86174A, 86633A, 86634A	I-94 Eastbound, Station 1353+00, 163 feet right of centerline, 36 inch concrete
	I-94 Westbound, Station 1369+59, 95 feet left of centerline, 12 inch CSP
	I-94 Westbound, Station 1370+95, 108 feet left of centerline, 12 inch CSP
	I-94 Westbound, Station 1449+70, 131 feet left of centerline, 60 inch concrete
	Ramp G Station 165+05, 244 feet left of centerline, 36 inch concrete
	Ramp D Station 122+50, 42 feet left of centerline, 12 inch concrete
10. I-96, EB over Ore Creek Drain, Brighton 47065-M60712	Station 998+00, 20 feet right of centerline, 12 inch concrete
11. M-35, Gwinn 52032-80141A	Station 45+02, 45 feet left of centerline, 12 inch concrete
12. US-41, Menominee 55011-80017A	Station 97+00, 87.50 feet right of centerline, 12 inch CMP
	Station 101+20, 102.50 feet right of centerline, 18 inch CMP
	Station 105+43, 68.50 feet right of centerline, 12 inch CMP
13. M-125, Monroe 58071-60156A	Station 317+25, 55.73 feet right of centerline, 42 inch concrete

Appendix D.5 2007 Labeled Outfalls

Project	Outfall Location
14. US-31 @ Sternberg Road, Norton Shores, Ramp E Sternberg Road 61074-87500A	Station 20+57, 25 feet right of centerline, 24 inch concrete
	Station 134+58, 100 feet left of centerline, 24 inch concrete
15. M-20, Goodwell Township 62015-60564A	Station 26+90, 45 feet left of centerline, 15 inch concrete
16. M-15, Ortonville 63071-89268A	Station 7+25, 40 feet right of centerline, 18 inch concrete
17. M-15, Cass City 79032-82606A	Station 57+28.93, 42 feet right of centerline, 24 inch concrete
	Station 56+53.80, 46 feet right of centerline, 24 inch concrete
18. M-25, over Wiscoggin Drain 79081-80286A	Station 359+92, 45 feet right of centerline, 24 inch CMP
	Station 360+75, 48 feet right of centerline, 12 inch concrete
	Station 360+75, 48 feet left of centerline, 12 inch concrete
19. I-75, Birch Run to Bridgeport 73171-75246A	Station 1877+45, 100 feet left of centerline, 18 inch concrete
	Station 1884+00, 100 feet left of centerline, 12 inch concrete
	Station 1886+25, 100 feet left of centerline, 12 inch concrete
	Station 1889+50, 150 feet left of centerline, 36 inch concrete
	Station 1889+51, 100 feet left of centerline, 15 inch concrete
	Station 1892+62, 100 feet left of centerline, 12 inch concrete
	Station 1898+72, 100 feet left of centerline, 12 inch concrete
	Station 1902+51, 100 feet left of centerline, 15 inch concrete
	Station 1908+30, 90 feet left of centerline, 12 inch concrete
	Station 1911+30, 160 feet left of centerline, 12 inch concrete
	Station 1914+16, 138 feet left of centerline, 12 inch concrete
	Station 1914+40, 150 feet left of centerline, 72 inch concrete
	Station 1914+68, 130 feet left of centerline, 12 inch concrete
	Station 1917+30, 110 feet left of centerline, 12 inch concrete
	Station 1919+80, 110 feet left of centerline, 12 inch concrete
	Station 1922+80, 100 feet left of centerline, 12 inch concrete
	Station 1925+80, 100 feet left of centerline, 12 inch concrete
	Station 1928+80, 113 feet left of centerline, 12 inch concrete
	Station 1934+82, 104 feet left of centerline, 12 inch concrete
	Station 1937+80, 102 feet left of centerline, 12 inch concrete
	Station 1940+70, 110 feet left of centerline, 15 inch concrete
	Station 1946+96, 110 feet left of centerline, 12 inch concrete
	Station 1949+96, 110 feet left of centerline, 12 inch concrete

Appendix D.5 2007 Labeled Outfalls

Project	Outfall Location
	Station 1952+96, 110 feet left of centerline, 12 inch concrete
	Station 1956+50, 95 feet left of centerline, 15 inch concrete
	Station 1961+92, 96 feet left of centerline, 12 inch concrete
	Station 1965+24, 94 feet left of centerline, 15 inch concrete
	Station 1974+38, 110 feet left of centerline, 18 inch concrete
	Station 1977+84, 102 feet left of centerline, 12 inch concrete
	Station 1983+24, 100 feet left of centerline, 12 inch concrete
	Station 1984+35, 94 feet left of centerline, 8x8 concrete Box
	Station 1986+24, 112 feet left of centerline, 15 inch concrete
	Station 1994+42, 111 feet left of centerline, 15 inch concrete
	Station 1998+60, 98 feet left of centerline, 8x8 concrete Box
	Station 2004+00, 110 feet left of centerline, 15 inch concrete
	Station 2010+25, 105 feet left of centerline, 12 inch concrete
	Station 2013+45, 108 feet left of centerline, 12 inch concrete
	Station 2016+06, 114 feet left of centerline, 72 inch concrete
	Station 2017+50, 112 feet left of centerline, 15 inch concrete
	Station 2021+40, 98 feet left of centerline, 24 inch concrete
	Station 2024+38, 104 feet left of centerline, 12 inch concrete
	Station 2029+20, 120 feet left of centerline, 18 inch concrete
	Station 2033+70, 120 feet left of centerline, 12 inch concrete
	Station 2036+12, 101 feet left of centerline, 36 inch concrete
	Station 2036+70, 106 feet left of centerline, 12 inch concrete
	Station 2039+66, 114 feet left of centerline, 12 inch concrete
	Station 2042+68, 96 feet left of centerline, 12 inch concrete
	Station 2048+63, 98 feet left of centerline, 12 inch concrete
	Station 2051+63, 99 feet left of centerline, 12 inch concrete
	Station 2054+62, 114 feet left of centerline, 12 inch concrete
	Station 2057+63, 110 feet left of centerline, 12 inch concrete
	Station 2063+02, 112 feet left of centerline, 18 inch concrete
	Station 2064+00, 104 feet left of centerline, 36 inch concrete
	Station 2067+38, 108 feet left of centerline, 12 inch concrete
	Station 2073+89, 114 feet left of centerline, 15 inch concrete
	Station 2077+38, 111 feet left of centerline, 12 inch concrete
	Station 2080+38, 112 feet left of centerline, 12 inch concrete
	Station 2086+38, 130 feet left of centerline, 18 inch concrete
	Station 2094+68, 100 feet left of centerline, 12 inch concrete

Project	Outfall Location
	Station 2097+35, 98 feet left of centerline, 15 inch concrete
	Station 2098+01, 103 feet left of centerline, 24 inch concrete
	Station 2103+40, 120 feet left of centerline, 12 inch concrete
	Station 2106+35, 110 feet left of centerline, 12 inch concrete
	Station 2111+80, 80 feet left of centerline, 18 inch concrete
	Station 2114+66, 98 feet left of centerline, 12 inch concrete
	Station 2120+62, 116 feet left of centerline, 12 inch concrete
	Station 2123+62, 118 feet left of centerline, 12 inch concrete
	Station 2126+11, 98 feet left of centerline, 15 inch concrete
	Station 2131+67, 104 feet left of centerline, 12 inch concrete
	Station 2134+66, 112 feet left of centerline, 12 inch concrete
	Station 2137+66, 102 feet left of centerline, 12 inch concrete
	Station 2140+69, 104 feet left of centerline, 12 inch concrete
	Station 2143+69, 106 feet left of centerline, 12 inch concrete
	Station 2145+04, 108 feet left of centerline, 36 inch concrete
	Station 2146+72, 106 feet left of centerline, 12 inch concrete
	Station 2149+73, 104 feet left of centerline, 12 inch concrete
	Station 2155+88, 100 feet left of centerline, 15 inch concrete
	Station 2158+90, 90 feet left of centerline, 12 inch concrete
	Station 2161+80, 118 feet left of centerline, 12 inch concrete
	Station 2165+38, 108 feet left of centerline, 15 inch concrete
	Station 2167+98, 90 feet left of centerline, 12 inch concrete
	Station 2170+00, 86 feet left of centerline, 12 inch concrete
	Station 2174+00, 88 feet left of centerline, 12 inch concrete
	Station 2178+80, 100 feet left of centerline, 12 inch concrete
	Station 2183+50, 98 feet left of centerline, 15 inch concrete
	Station 2186+50, 100 feet left of centerline, 12 inch concrete
	Station 2186+90, 150 feet left of centerline, 60 inch concrete
	Station 2189+80, 107 feet left of centerline, 12 inch concrete
	Station 2192+80, 106 feet left of centerline, 12 inch concrete
	Station 2195+80, 96 feet left of centerline, 12 inch concrete
	Station 2198+80, 110 feet left of centerline, 12 inch concrete
	Station 2201+80, 82 feet left of centerline, 12 inch concrete
	Station 2204+80, 80 feet left of centerline, 12 inch concrete
	Station 2210+60, 95 feet left of centerline, 12 inch concrete
	Station 2213+60, 90 feet left of centerline, 12 inch concrete

Appendix D.5 2007 Labeled Outfalls

Project	Outfall Location
	Station 2216+61, 96 feet left of centerline, 12 inch concrete
	Station 2219+61, 90 feet left of centerline, 12 inch concrete
	Station 2222+52, 98 feet left of centerline, 48 inch concrete
	Station 2222+82, 89 feet left of centerline, 12 inch concrete
	Station 2225+60, 95 feet left of centerline, 12 inch concrete
20. US-24, Flat Rock 82051-48539A	Station 55+92, 70 feet right of centerline, 12 inch concrete
	Station 56+10, 55 feet right of centerline, 18x6 concrete box
21. M-14, Sheldon Road 82102-45711A	Station 449+00, 102 feet left of centerline, 24 inch concrete
	Station 469+52, 48 feet left of centerline, 72 x 113 inch concrete
	Station 68+85, 242 feet left of centerline, 72 x 113 inch concrete
	Station 502+53, 54 feet left of centerline, 24 inch concrete
	Station 502+04, 58 feet right to centerline, 24 inch concrete
	Station 764+00, 86 feet left of centerline, 18 inch concrete
	Station 399+74, 71 feet right of centerline, 43x68 inch concrete
	Station 470+60, 92 feet right of centerline, 72 x 113 inch concrete

JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
COLOMA TRANSPORTATION SERVICE CENTER

KIRK T. STEUDLE
DIRECTOR

February 15, 2007

Mr. Vincent Romano
39571 M-140 Highway
Covert, Michigan 49043

Dear Mr. Romano:

The Michigan Department of Transportation (MDOT) is currently investigating its drainage system within Covert Township. Information gathered during the course of this investigation indicates that an illicit discharge and connection is likely originating from your property at 39571 M-140 and entering into MDOT's drainage system. MDOT staff who first noticed the pipe indicated that there were soap suds coming from the pipe.

The Federal Clean Water Act and Part 31, Water Resources Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended and regulations promulgated pursuant to these statutes, mandates that only clean storm water or potable water can be discharged to a system that discharges to the waters of the State. Your property could be discharging pollutants to MDOT's drainage system in violation of these laws and in violation of the Highways Obstructions and Encroachments Act, 1925 PA 368.

Please remove this encroachment within 30 days after receipt of this letter. By March 31, 2007, you must provide documentation to this office describing what actions you have taken to resolve this matter. If you are unable to remove this encroachment within that time, you must provide information to this office by March 31, 2007, describing the specific steps and schedule by which you will remove this encroachment. By copy of this letter, we are notifying the Michigan Department of Environmental Quality (MDEQ), Covert Township, and the Van Buren County District Health Department of this information.

Please contact Nicholaus VanWoert at (269) 337-3936 if you have any questions.

Sincerely,

Paul South, P.E., Manager
Coloma TSC, Southwest Region

PS:df

cc: Kalamazoo District Supervisor, MDEQ Water Division
Covert Township
Van Buren County District Health Department

bcc: Tetra Tech MPS, MDOT MS4 Consultant
Judy Ruszkowski, MDOT Storm Water Program Manager
Bobbi Welke, MDOT Southwest Region Engineer
Nicholaus VanWoert, MDOT Southwest Region Storm Water Representative

JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
COLOMA TRANSPORTATION SERVICE CENTER

KIRK T. STEUDLE
DIRECTOR

December 5, 2007

Mr. Tom Jelinek
8141 West US-12 Highway
Three Oaks, Michigan 49128

Dear Mr. Jelinek:

Enclosed is a copy of a letter dated August 6, 2007, mailed to you regarding an illicit discharge and connection originating from your property and entering into the Michigan Department of Transportation's (MDOT's) drainage system. This letter required that you either remove the illicit discharge and connection by September 10, 2007, or respond by that date describing what actions you plan to take to eliminate this discharge and connection. As of this date, we have not received a formal response from you indicating your plans to remove this connection.

MDOT is required to take enforcement actions to eliminate all illicit discharges and connections to its drainage system by its National Pollutant Discharge Elimination System permit for the discharge of its storm water. If you do not either remove the connection described in the enclosed letter, or provide MDOT with a detailed plan to have the connection removed by **January 7, 2008**, MDOT will take the appropriate enforcement actions to eliminate this illicit connection and discharge into MDOT's drainage system.

By **January 7, 2008**, you must provide documentation to this office describing what actions you have taken to resolve this matter and a detailed plan to have this matter corrected. By copy of this letter, we are notifying the Michigan Department of Environmental Quality (MDEQ), Three Oaks Township, and the Berrien County Health Department of this information.

If you have any questions, please contact Nicholaus VanWoert, MDOT Southwest Region Storm Water Representative, at (269) 337-3936 or e-mail vanwoertn@michigan.gov.

Sincerely,

Paul South, P.E.
Manager, Coloma TSC

Enclosure

cc: Three Oaks Township
Berrien County Health Department
Kalamazoo District Supervisor, MDEQ Water Division

3880 RED ARROW HIGHWAY • BENTON HARBOR, MICHIGAN 49022
www.michigan.gov • (877) 321-6368

bcc: Tetra Tech MPS, MDOT MS4 Consultant
Judy Ruszkowski, MDOT Storm Water Program Manager
Bobbi Welke, MDOT Southwest Region Engineer
Nicholaus VanWoert, MDOT Southwest Region Storm Water Representative

Mr. Charles Sittig, Supervisor
Three Oaks Township
8 East Linden
P.O. Box 55
Three Oaks, Michigan 49128

Mr. Gary Witkowski
Berrien County Health Department
2106 South M-139 Highway
Benton Harbor, Michigan 49022

Kalamazoo District Supervisor
MDEQ Water Division
7953 Adobe Road
Kalamazoo, Michigan 49009-5026

Ms. Judy Ruszkowski E020
MDOT Storm Water Program Manager
C & T Building
P.O. Box 30049
Lansing, Michigan 48909

Mr. Gary Markstrom
Tetra Tech MPS
123 Brighton Lake Road, Suite 203
Brighton, Michigan 48116

Appendix E

Post Construction for New Development and Redevelopment

1. List of Post-Construction Storm Water Best Management Practices (Pages E.1-1 to E.1-4)
2. Project Water Quality Recommendations (Pages E.2-1 to E.2-11)

Control Section	Job Number	County	Route	Job Description	Impact Issues	BMP/Mitigation	Recommended Maintenance
03032		Allegan	US-31, Median, South of Washington Ave. in Holland	Detention Basin			
04031	32335	Alpena	US-23	Detention Basin			
11013	34500	Berrien	US-31 St. Joseph River	Detention pond in Ramp			
11016		Berrien	I-94, over St. Joe River - SE quadrant	Detention Pond			
11016	38208	Berrien	I-94 at Napier Ave.	Detention Basin			Berrien County Drain
11018	38094	Berrien	I-94 @ Mill Race Creek	Drop Structure			
11051		Berrien	Old US-33, Woodlawn and Church Street	Detention Basin			MDOT Maintenance
11054	99282	Berrien	M-63 - NE quadrant of Maple Lane	Detention Basin at Lake Michigan			
11057		Berrien	US-31, Station 354, Niles-Buchanan Road	Detention Basin			
11056		Berrien	US-31, Station 507, NB	Detention Basin			
11056		Berrien	US-31, Station 539, NB	Detention Basin			
11056		Berrien	US-31, Station 616, SB	Detention Basin			Private Property
11057		Berrien	US-31, Station 740, Lake Chapin Rd.	Detention Basin			
11057		Berrien	US- 31, Station 753, NB, South side of Lake Chapin	Detention Basin			
11057		Berrien	US-31, Station 767, NB, North side of Lake Chapin	Detention Basin			
11057		Berrien	US-31, Station 780, NB, South of Snow Rd.	Detention Basin			
11057		Berrien	US-31, Station 789, NB, Snow Rd.	Detention Basin			
11057		Berrien	US-31, Station 862, NB, North of Shawnee Rd.	Two Detention Basins			
11057	29512, 34511	Berrien	US-31 NB Lemon Creek Tributary, Walton and Maths Rd.	Detention/ Sedimentation			
11112	34511	Berrien	US-31 @ Old US-31 (S08 of 11112)	Detention Pond			
13031	99289	Calhoun	M-66 @ B Drive, Battle Creek	Walmart Detention Basin			
13032	39654	Calhoun	M-66 @ Pennifield	Co. Drain to Infiltration Basin			
15071	45002	Charlevoix	M-75, Boyne Industrial Park	Infiltration Trench			
15091	32322	Charlevoix	US-131, BR	Retention Basin, 2 cell			
18032	53307	Clare	US-131BR	Harrison Infiltration System			

Control Section	Job Number	County	Route	Job Description	Impact Issues	BMP/Mitigation	Recommended Maintenance
20012		Crawford	AuSable River & BL I-75 in city of Grayling	Vegetative Ditch			
23062	12271	Eaton	I-69	Detention Basin			
25032	33289	Genesee	I-75/ US-23 Parker Drive	Stilling Basin			
28012		Grand Traverse	US-31, M-37, Chums Corner	Two cell Detention Basin			
28051	37693	Grand Traverse	US-31/ M-37	Detention Basin			
30062		Hilldale	US-12, Jonesville	Retention Basin			
33084		Ingham	I-96	Detention Basin			
37022		Isabella	M-20,US-127, NE quadrant of Ramp	Pump Station and Retention			
39011		Kalamazoo	US-131, Station 163, SB	Detention Basin			Private Property
39022		Kalamazoo	North of I-94 and west of Lovers Lane in Kalamazoo/Portage	Dry pond detention basin			
39022		Kalamazoo	I-94 WB at Galesburg Rest area	Detention Basin			MDOT Maintenance
39024	86055	Kalamazoo	I-94 NW quadrant of 12th street	Detention Basin			
39024	86055	Kalamazoo	I-94/US-131 SouthwestSouthwest side of Ramp C station 1350+00	Detentioon Basins			
39024	86055	Kalamazoo	I-94/US-131 NW quadrant of interchange inside ramps G and D	Detention Basin			
39024	86055	Kalamazoo	I-94 WB/northside just east of Oakland Drive station 1455+00	Detention basin			
39024	86055	Kalamazoo	I-94/US-131 Northerly side of interchange in median between NB/SB US-131	Detention Basin			
39024	54230	Kalamazoo	I-94 at Sprinkle Road	Detention Basins			
39041	72683	Kalamazoo	I-94 BL Stadium Drive at Michigan Ave	Infiltration Basin			
39032	28617	Kalamazoo	M-43	Detention Basin			
39081		Kalamazoo	M-43 at 8th St.	Two Detention Basins			
39082		Kalamazoo	M-43	Infiltration Basin			
41031	30147	Kent	M-37, Plaster Creek Tributary, NW of 44th Street	Detention Basin			
41031	34694	Kent	M-37 @ 44th to 60th	Retention Basin			
41051		Kent	M-44	Detention Basin			

Control Section	Job Number	County	Route	Job Description	Impact Issues	BMP/Mitigation	Recommended Maintenance
41057		Kent	M-44	County Drain - Knapps Drain - Infiltration			County will maintain
41131	51903	Kent	US-131	Bridge Reconstruction over Plaster Creek	Scupper Drain Runoff	Bank stablization to correct gully erosion	
43021/43012		Lake	NW Quadrant of M-37/US-10 north JCT	Detention Basins			
43555		Lake	M-37 @ Lake Street, Baldwin	Vortech, outlet weir			
45012		LeeLanau	M-22, Glenn Arbor Pump station	Retention Basin			City jurisdiction
47014	34519	Livingston	M-59	Ramp Reconstruction, Widen Approaches	Extensive groundwater contamination at all 4 quadrants	Minimize utility cuts, Dewatering, non-porous	
50022	28460	Macomb	M-59 @ Elizabeth Rd. / I-94	Detention Basin			
50022	5675	Macomb	M-59	Detention Basin			
50022	28460	Macomb	M-59, Snover Road	Infiltration Basin			
50023		Macomb	M-59,	3 Detention Basins, First flush in Median			
50062		Macomb	I-696, Lake Street	Oli/gas separator			
51011	74005	Manistee	US-31, Manistee	Vortech			MDOT Maintain
53034		Mason	US-131 north and south of the Big Sable River	Bit paved ditches and grated structures			
53022	44413	Mason	US-10	Detention and Leachate Basin			
59045	32341	Montcalm	M-46 East of Edmore	2 ponds			
63012		Oakland	I-696, River Rouge	Pump Station			
63022	51880	Oakland	I-96 @ Beck Road	Pond			
63081		Oakland	US-10 and Northwestern Hwy., McKinley Drain	Detention Basin			
63101	9219	Oakland	I-696, Minnow Pond Drain	Swale retrofit demostration project			
63102	22140	Oakland	US-10 and Northwestern Hwy.	Detention Basin with Pump Station discaharge into Rouge			
63112		Oakland	M-24, Lake Orion	Retention Study by MSU			
67022	38464	Osceola	US-10 in Evart	Detention Basin			
69022		Otsego	west side of M-32 just south of Johannesburg	Detention Basin			
69000		Otsego	Gaylord	Detention Basin			
70041		Ottawa	M-45, west of Sand Creek	Retention Basin			

Control Section	Job Number	County	Route	Job Description	Impact Issues	BMP/Mitigation	Recommended Maintenance
77023		St. Clair	M-21	Detention Basin			
80071	48547	Van Buren	M-51 in Decatur	Infiltration Basin			
80071	48547	Van Buren	M-51 in Decatur	Infiltration Basin			
82022	45686	Wayne	I-94 Beech Daly to Pelham Road	Detention Basin			
83031	48538	Wexford	US-131BR, Cadillac, Mackinaw Trail	Detention Basin			
83033		Wexford	US-131	Bog/Fen Bridge Approach	Infiltration	Minimize salt to bog	
83033	43613	Wexford	US-131 at S04 of 83033	Basin - Infiltration and Retention	Litigation		
FR11112	38605		US-31 (Relocation)	Detention Basin			
	74149		I-69	Rest area reconstruction	Parking lot runoff	Oil/water separators	
12033			US-12 and I-69	Detention Basin			MDOT Maintenance
41024		Kent	I-96/36th St.	Rip rap, drop structures, basins, permanent check		Slows water flow	
13074		Calhoun	I-69 southbound, Turkeyville Rest Area	Rain garden		Parking lot runoff	Contractor responsible for weeding in first year.
31012		Houghton	Cemetery Rd, City of Houghton	Storm sewer and detention basin			
31051		Houghton	Mill Rd / US-41, near City of Houghton	Drop structure			

Summary of Project Recommendations for Water Quality Benefit

Reconstruct, widening, drainage work, sewer, water main, utilities, access mgt, turn lanes, sidewalk, GR, detour, ROW, c&g outlets, I-94 BL from M-60 to Washington/Louis Glick, Jackson County, University Region, Grand river
If the project results in increased stormwater volume or rate of discharge, BMPs should be included in the project to mitigate the effects of stormwater on water quality and to comply with MDOTs statewide NPDES stormwater discharge permit. Appropriate procedures should also be followed to locate and contain contaminated groundwater that may be encountered during water main, utility, or sewer work.

Interchange upgrade and bridge work, US-23/Geddes Rd, Washtenaw County, University Region, Huron River
The current scope of work will not have a significant effect on water quality. If the scope of work extends south or if project changes will affect drainage patterns to the Huron River, then BMP's should be included in the project.

M-99 from Hillsdale city limits south to Bacon St, Hillsdale County, University region, St. Joe River
BMPs have been examined and included in the project design. Several alternatives for installing treatment structures have been looked at, but the feasibility of incorporating these practices was diminished by the presence of a high water table and the location of multiple 4(f) properties, fair grounds, and a cemetery. For at least one location, moving the existing outlet back form the river and creating a vegetated swale will be possible.

US-27 BR over the Looking Glass River Bridge Replacement, Clinton County, University Region, Looking Glass River
If the project increases the volume or velocity of stormwater discharged from MDOT ROW, or includes drainage outlets with direct discharges to surface water, then BMPs should be included in the project design. Open drainage through a vegetated swale is the preferred conveyance for storm water runoff. Runoff from bridges and culverts should be discharged as far back as possible from the receiving water body.

US-131 NB between Kalamazoo and Grand rapids, Rest Area, Allegan County, Southwest Region
Construction of the rest area will include two parking lots with a paved surface area of 5.61 acres. Runoff from the lots will be directed to an existing vegetated roadside ditch along NB US-131 which extends approximately 0.75 miles before joining the Gun River. Runoff from the parking areas will be reduced by the processes of infiltration, evaporation, sedimentation, and evapotranspiration. In addition, vegetation within the drainage ditch will facilitate pollution removal through filtration and plant uptake.

M-49 from Indiana NE RR to north Reading city limits, Reconstruct storm sewer and outlet, 9500 ft of new c&g, increase pavement by 2.06 acres, Hillsdale County, University Region, Wetlands/Drain

The 2.06 acre increase in impervious surface area and 9500 ft of new c&g will add drainage fro the city into the MDOT storm drain. BMPs for this project include an existing vegetated ditch that flows through a wetland and provides 1000 to 1500 feet of treatment and an existing detention pond for the outlet from Walnut St. Strom water discharge at two other outlets has been removed.

M-49 Bridge over the St. Joseph River, Litchfield

Long term negative impacts on water quality and fisheries are not expected from this project. The following recommendations were made to protect the resources: Stormwater runoff should be outleted as far back from the water's edge as possible, any trees removed within 25 ft of the river channel should be replaced, precautions should be taken to prevent any debris or paint spray from entering the river (bridge is currently painted with lead paint), and if construction activities create soil disturbance then SESC controls must be put in place.

M-49 form Allen to Litchfield, St. Joseph river/Sand Creek

Long term negative impacts on water quality and fisheries are not expected from this project. A limited amount of new c&g is expected to be laid and the basic "footprint" of the road will remain unchanged. The following recommendations were made to protect the resources: Stormwater runoff should be outleted as far back from the water's edge as possible, any trees removed within 25 ft of the river channel should be replaced, and if construction activities create soil disturbance then SESC controls must be put in place.

I-94 BL from MLK Drive to River St. in Benton Harbor, Berrien County, Grand Region, St. Joseph River.

Stormwater BMPs have been examined and alternatives discussed during the project design phase. To the maximum extent practicable, BMP's have been included to mitigate the effects of storm water runoff. The storm water outlet in the NW quadrant of Ox Creek, which is currently a direct discharge point, will be reconstructed at a maximum distance from the water's edge; the outlets velocity will be reduced as much as possible and a vegetated and/or riprap swale will be constructed.

M-25 from Sebewaing Rd to the Sebewaing River, Huron County, Bay region, Sebewaing River.

If the project scope includes activities that increase the volume or velocity of stormwater discharge from MDOT ROW, and/or include storm sewer outlets with direct discharge into surface water bodies, then BMPs should be included in the project design.

Railway, Livingston and Washtenaw Counties, University Region, Huron River

Storm water runoff from parking areas should be considered during project design. BMP practices should be put into effect to minimize and mitigate the effects of storm water runoff and to comply with MDOTs statewide NPDES stormwater discharge permit.

M-25 from Canboro Rd to Stein Rd., Tuscola County, Bay Region, Kilmanagh, Gettel drain

If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit.

M-25 from Patz Rd to Huron COL, Sanilac County, Bay Region, Mill, Wanke, County Line Creek

If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit.

M-115 from SE of S. Harding Rd to NW of Cunningham Ave., Clare county, Bay Region, SB Tobacco River

All streams in this area are listed as designated trout streams by the MDNR. It is likely that no work will be permitted from Oct 1st through March 31 to protect fisheries. Attention will be given to culvert size, placement of riprap and shading and vegetation along the stream bank. If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit.

M-25 Bay/Tuscola COL to Tuscola/Huron COL, Tuscola County, Bay Region, Quanicassee River.

If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit. Since the bridges over the Quanicassee River and Wiscoggins drain are painted with lead paint, there is a potential for contaminated sediments to be encountered.

M-13, Zilwaukee Bridge to McGraw project 1, bay county, Bay region, Saginaw River.

If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit. Polluted sediments in the Saginaw River are located the entire length of the proposed project. If there is any work done on the river channel at Cheboyganing Creek Bridge, then sediments will have to be tested for contamination.

M-13, Zilwaukee Bridge to McGraw project 2, bay county, Bay region, Saginaw River.
If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit. Polluted sediments in the Saginaw River are located the entire length of the proposed project.

M-13/M-84 from Euclid to Bascule Bridge, Bay County, Bay Region, Saginaw River
M-13, Zilwaukee Bridge to McGraw project 1, bay county, Bay region, Saginaw River.
If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit. Polluted sediments, including heavy metals and PCBs are located in the vicinity of the Bascule Bridge. If there is any work in the river channel, sediments will have to be tested.

US-127 from south Blanchard Rd to interchange south of Shepherd Rd, Isabella County, Bay Region, Little Salt River
If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit. The entire project location is within the Village of Shepherd's Source Water Protection Area, designed to protect the city's water supply.

M-19 from north of Burt Rd to Old M-21, reconstruct c&g, CSO separation, St Clair county, Metro Region, Detroit River
There is a LUST site adjacent to the project area. If cuts for storm or sanitary sewer occur during the project, then appropriate procedures should be followed to locate and contain any contaminated groundwater.

M-119 south of Division Rd, design and construct timber bridge to replace culvert, stream restoration, nm path, roadside park, info center, traffic detour, Emmet County, North Region, unnamed trib.
The unnamed trib is a designated trout stream, however the stream has been observed to be nearly dry in summer months. Per MDOTs statewide NPDES stormwater permit, BMPs should be used for stormwater runoff from the bridge and surrounding roadway. Scupper and bridge deck drains should not be placed over water and techniques such as riprap placement should be utilized under the bridge where scuppers drain.

I-69 from Lapeer/St Clair COL to west of M-19, reconstruct ramps, c&g, replace/enclose drainage, Clinton County, University region, St. Johns Big Ditch.
There are LUST sites adjacent to project. If cuts for utility or storm sewer work occurs, appropriate procedures should be followed to locate and contain any contaminated groundwater that is encountered.
Cheboygan County, Pavement repair, c&g, culvert ext/hdwalls, ditching, st sewer, tree removal, GR, slope flat/rest., util reloc, North region, Mullet Creek
Mullet Creek is listed by the MDNR as a designated coldwater trout stream. No work shall be performed between Oct. 1 and March 31 for protection of coldwater species. Retain open drainage whenever possible. If changes to project scope effect culvert work on streams or drainage, further review will be necessary.

Kent County, Grand region, Plaster Creek, unnamed. Rehab, coldmill joints & overlay, CB repairs, c&g, sidewalk, GR, slope rest, st sewer replacements, utility work, detour
Plaster Creek and the unnamed trib to the east of Eastern Avenue are considered warmwater fisheries resources. If work on the stream channel is proposed for these locations, fisheries in-stream no-work dates for warmwater sfish species (March1 through May 31) will apply. There are multiple LUST sites adjacent to the project area. If cuts for storm or sanitary sewer occur during the project, then appropriate procedures should be followed to locate and contain any contaminated groundwater.

Washtenaw County, University region, Huron River
The Huron River is considered a top quality warmwater fisheries resource. If the scope of work includes a full reconstruct, replacement of storm sewers, widening, enclosing of drains, or extensive new c&g, then stormwater BMPs should be considered to mitigate the effects of storm water runoff. There are also multiple LUST sites adjacent to this project as well as two sites with contaminated groundwater. Appropriate measures should be taken to locate and isolate contaminated ground water encountered during construction.

Oakland County, Metro region, Paint Creek/Clinton River, Reconstruct, widen 1-3 ft, GR, driveways, drainage work, sidewalk, intersxn approach wk.
Paint Creek is listed by the MDNR as a designated coldwater trout stream. No work shall be performed between Oct. 1 and March 31 for protection of coldwater species. Early coordination with the MDEQ and a plan to provide treatment for stormwater runoff will be necessary if we increase stormwater discharge or install a new outlet to Paint Creek. Concerns include excessive sedimentation, and potential for elevated stream temperature fro runoff. Practices including detention/retention ponds, infiltration basins, vegetated swales, or rain gardens should be employed.

Monroe County, University Region, Little Sandy creek
Little Sandy creek is a warmwater fisheries resource. If culvert, bridge, riprap or any other work is proposed within the stream channel, fisheries in-stream no-work dates may apply. If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the

effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit.

Monroe County, University region, Various Streams
LaBadie Creek, N. Ten Mile Creek, Ottawa lake Drain, Dally creek, Bischoff Drain, Smith Ditch, and Dally Creek are considered warmwater fisheries. If culvert, bridge, riprap, or any other work is proposed within the stream channel, then fisheries in-stream no-work dates apply. If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit. There are also multiple LUST sites adjacent to this project as well as two sites with contaminated groundwater. Appropriate measures should be taken to locate and isolate contaminated ground water encountered during construction.

Monroe county, University Region, Raisen River/var. streams

The Raisin River and other streams within the project limits are considered warmwater fisheries resources. If culvert, bridge, riprap, or any other work is proposed within the stream channel, then fisheries in-stream no-work dates apply. If the project includes road or shoulder widening, new drainage enclosures, upsizing storm sewer, direct discharge into water bodies, or installation of extensive new c&g, then stormwater BMPs should be included in the project design to mitigate the effects of stormwater runoff on water quality in order to comply with MDOT's statewide NPDES stormwater discharge permit. There are also multiple LUST sites adjacent to this project as well as two sites with contaminated groundwater. Appropriate measures should be taken to locate and isolate contaminated ground water encountered during construction.

Oakland County, Metro region, Clinton River/var. lakes
Mill/resurf, sidewalk. Driveways, drainage, GR, c&g, ramp work, grading shoulder work.

Most lakes within project limits are listed by the MDNR as designated coldwater lakes. The Clinton River and other streams connecting lakes within the project limits are considered top quality fisheries resources. If culvert, bridge, riprap, or any other work is proposed within the stream channel, then fisheries in-stream no-work dates apply. To manage the effects of stormwater runoff on water quality, stormwater BMPs (e.g. detention/retention ponds, infiltration basins, vegetated swales) should be employed anywhere stormwater discharges into streams or lakes. There are also multiple LUST sites adjacent to this project as well as two sites with contaminated groundwater. Appropriate measures should be taken to locate and isolate contaminated ground water encountered during construction.

M-82 in Fremont at 56th Street, Newaygo County, Grand Region, McDonald Drain, widening center left turn lane, intersection work, culvert ext., enclosing drain, extensive new c&g

McDonald Drain is tributary to Fremont Lake, a designated trout stream. Long-term negative impacts can be avoided by following BMPs for stormwater discharge. Runoff should be directed to flow overland through filtering vegetation for 200 feet or maximum possible distance. Discharge velocities should be reduced as much as possible and protection provided at the outlet for erosion control. Drainage should not directly discharge into the water body.

Two RR lines crossing near US-31 east of Muskegon Hts. Muskegon County, Grand Region, Little black Creek

Little Black Creek is listed by DNR Fisheries as a designated trout stream. Long-term negative impact to water quality are not expected from the acquisition of this property for lease to DNR. If a nm trail is to be constructed, the following recommendations should be considered. Stormwater runoff from nm path should not drain directly into watyer body, runoff should be directed through 200 ft of vegetation to remove sediment and other pollutants, discharge velocities should be reduced as much as possible. Fisheries in-stream no-work dates may apply.

I-94 BL crossing CSX RR, replaces sw outlet discharging to Bunce Creek, St Clair County, Metro region, Bunce Creek

Bunce Creek has a moderate quality, warm water fishery and is listed as not attaining the state water quality standards by the MDEQ. Long-term, negative impacts to water quality are not expected from this project. Stormwater discharge will be allowed to flow overland through filtering vegetation for a maximum possible distance to remove sediment and other pollutants before it enters the receiving water body. Discharge velocities should be reduced as much as possible and protection provided to the outlet to inhibit erosion.

Logging in Lake Superior Region, Baraga, Mackinac, and Ontonagon Counties, 8 locations for either clear-cut or selective logging, possible heavy equipment.

Long term, negative impacts from these projects is not expected providing the following recommendations are considered. No clear-cutting of trees without consultation with DNR fisheries, no cutting of trees larger that 4” dbh within 25 ft of waters edge, and selective cutting within the buffer may be permitted. Special considerations are given to the specific projects within the range of the logging project.

US-10 Corridor Project, M-18 to E. midland COL, Midland County, Bay Region, Sanford Lake, Sturgeon Creek. Resurf, shoulder and bridge widen, culverts.

Long term negative impacts from this project are not expected providing that the following recommendations are considered. Runoff from bridges at Sanford lake and Sturgeon Creek should be allowed to flow overland through filtering vegetation for a maximum possible distance. Discharge velocities should be reduced as much as possible and protection provided at outlet to prevent erosion. Where possible, scupper drains should be eliminated.

I-94 Bridge over Norfolk Southern RR and Portage Creek, Kalamazoo county, Southwest Region, Portage Creek, replace steel plates, paint, excavation.

Portage Creek is listed as an impaired water body by the MDEQ and a designated trout stream by the MDNR. Long-term, negative impacts to water quality are not expected from this project providing the following recommendations are met. All appropriate SESC procedures to minimize erosion and sedimentation should be carefully planned and followed closely in the vicinity of this sensitive water body.

I-94 Bridge over Galien River, Berrien County, Southwest region, Galien River. Widening, deck and pier replacement, scour protection, work in water.

The Galien River is listed as a designated trout stream by the MDNR. No work can occur between October 1st and March 31st. The bridge has historically been painted with lead paint so if excavation is planned within the river channel or floodplain, sampling should be conducted for lead. Post construction BMP should be put in place including allowing runoff to flow through a minimum of 200 ft of filtering vegetation prior to entering the water body. Discharge velocities should be reduced to eliminate erosion and SESC procedures should closely followed near this sensitive water body.

M-18, Gladwin County, Bay Region, Cedar River Watershed, widening for center turn lane, new storm sewer, bury ditches.

Increased impervious surface will be mitigated by incorporating perforated storm sewer pipe and a vegetated detention basin/swale. There is a LUST site within the project limits. Do not use perforated storm sewer pipe adjacent to site.

M-3 Bridge over the Clinton River, Restudy

The Clinton River is listed as having sediments contaminated with heavy metals in this area of the project. If any excavation is planned within the river channel or floodplain, the soil should be tested for contamination and contaminated sediments should be disposed of properly. All appropriate SESC procedures should be enacted to minimize erosion and sedimentation. Steps should be taken to prevent concrete, wood, metal debris, and paint form entering the water body. Stormwater BMPs should be in place for runoff from bridge.

M-21 over the Grand River, Kent County, Grand region, Grand River, complete replacement of bridge.

Target for water quality is that drainage from the bridge should be allowed to travel overland through vegetation to facilitate filtration of sediments and pollutants. For this project, deck drains should be eliminated and drainage outlets should be moved as far down the bridge approach as possible.

US-10 from West midland COL east to M-18, Midland County, Bay region, Pine River/Little Salt creek

Stormwater BMPs should be used to minimize any negative effects of stormwater runoff on water quality. Stormwater outlets should be located away from the water's edge, and outlet velocities should be reduced as much as possible. Direct discharge into the stream should be avoided.

US-127 from Washington Rd. north to M-46, Gratiot County, Bay region, Pine River/Little Salt creek

Stormwater BMPs should be used to minimize any negative effects of stormwater runoff on water quality. Stormwater outlets should be located away from the water's edge, and outlet velocities should be reduced as much as possible. Direct discharge into the stream should be avoided. Depending on the scope of the culvert and bridge work, early coordination with MDNR Fisheries may be required.

US-127 from Crawford Rd. to just south of Mt. Pleasant connection, Isabella County, Bay Region, Little Salt River, Potter Creek

Stormwater BMPs should be used to minimize any negative effects of stormwater runoff on water quality. Stormwater outlets should be located away from the water's edge, and outlet velocities should be reduced as much as possible. Direct discharge into the stream should be avoided. Little Salt River and Potter creek contain warm water fish communities, early coordination with MDNR Fisheries may be required. Stream should be assessed to determine if fish passage through the culverts is an issue.

M-20, Bridge over the Tittabassee River 1000 ft each side, Midland County, Bay Region, Tittabawassee River

This area of the river is listed by the MDEQ as not meeting state's water quality due to untreated sewage discharges and dioxin contaminated sediments. Sediments in the river channel and floodplain at the M-20 bridge should be tested. Stormwater BMPs should be used to minimize any negative effects of stormwater runoff on water quality. Stormwater outlets should be located away from the water's edge, and outlet velocities should be reduced as much as possible. Direct discharge into the stream, especially deck drains, should be avoided.

NM Path, Grand trunk Western RR corridor from Ionia to Owosso (41.3 miles), Ionia, Clinton, Shiawassee Counties, University Region

Special consideration is required for culvert/bridge work along Prairie Creek, the Maple River, and Stoney Creek including no-work dates for cold water or warm water fisheries, minimizing tree removal and replacing trees that are removed. Stormwater BMPs should be used to minimize any negative effects of stormwater runoff on water quality. Stormwater outlets should be located away from the water's edge, and outlet velocities should be reduced as much as possible. Direct discharge into the stream should be avoided.

US-31 BR from 9th st north to north of Eastern, City of Muskegon, Muskegon County, Grand region, Ryerson Creek, Jurisdiction Transfer

Muskegon Lake and Ryerson Creek are both listed as not attaining he Water Quality Standards set for by MDEQ. The problems in Ryerson creek are possibly due to excess sedimentation from direst inputs and stream bank erosion due to "flashy" stream hydrology. Use of BMPs (e.g. vegetated swales, detention basins, infiltration basins) to manage the effects of stormwater runoff are especially important in these areas. Increase in volume of storm water discharge into Muskegon Lake and Ryerson creek should be avoided; efforts should also focus on the removal of sedimentation from runoff. SESC will be an important consideration for culvert placement in Ryerson creek.

NM path along Great Lakes RR from US 127 BR (McEwen St.) to Industrial St. City of Clare. Clare and Isabella County, Bay Region, Little Tobacco Drain.

Contaminated groundwater site located at the end of East First St. City of Clare Landfill. If bridge work is included as part of project it is preferred that abutments are kept well outside the channel if feasible. Fisheries in stream "no work" dates for warm water species may apply. BMP should be used to manage effects of stormwater runoff for water quality. Direct discharges into lakes or streams should be avoided.

US-23/I-96 interchange to US-23/M-14 interchange (Brighton to Ann Arbor), Livingston/Washtenaw Counties, University Region. Huron River

Under MDOTs statewide NPDES Stormwater Permit, increases in runoff from any project along this corridor will have to be managed using BMP practices to reduce quantity of runoff and facilitate the removal of pollutants. Work within the horseshoe Drain and the Huron River may be subject to fisheries "no work" dates. Any stormwater discharges / culvert work will need to be examined for potential impacts. Other areas of potential impacts are work at culverts carrying No Name Creek under US-23 EB and WB.

Various locations along I-675: bridges and roads/ramps. Saginaw County, bay region, Saginaw River.

The work includes work on the I-675 bridge over the Saginaw River. Long term negative impacts to water quality are not anticipated from this project as existing drainage patterns will remain unchanged. The bridge is located in an old industrial area and no opportunity was determined to be available to outlet the water to a vegetated area.

M-311 from Burlington to the Kalamazoo river, Calhoun County, Southwest Region Kalamazoo River and others.

This project includes guardrail work and culvert extensions, long term negative impacts to water quality are not anticipated. Streams within the project area include designated cold water trout streams and warm water fisheries. As currently planned, the project does not include culvert replacement in any of these streams. Project will need further review if changes in project scope occur including additional culvert work at stream crossings.

US-127 over the Grand River, Jackson County, University region, Grand river

This project includes repairs on the bridge over the Grand River. Long-term negative impacts to water quality are not anticipated. For this project, drainage outlets have been moved as far down the bridge approaches as possible given the current scope of work.

I-75/ Grange Hall Rd. carpool lot. Parcel acquisition, Oakland County, Metro Region

This project will include parcel acquisition and construction of a new carpool lot. No long-term negative impacts to water quality are anticipated. Drainage from the new lot should be allowed to sheet flow off the lot and travel overland through vegetation to facilitate filtration of sediment and pollutants prior to discharge into an adjacent wetland. Further review may be necessary if changes in the project scope occur.

Appendix F

Pollution Prevention/Good Housekeeping

Appendix F.1 Salt and Sand Usage

MDOT Salt and Sand Usage **Winter 2006-2007**

Municipal Salt Oct 2006-April 2007

Region	LANE MILES	TONS/DATE	TONS/LANE MILE
Superior	172.48	4951.73	28.71
North	143.41	6720.11	46.86
Grand	102.24	1840.29	18.00
Bay	288.34	4634.71	16.07
Southwest	282.96	4486.09	15.85
University	388.31	5767.71	14.85
Metro	251.69	4807.46	19.10
TOTAL	**1629.43**	**33208.10**	**22.78**

County and Direct Forces Salt & Sand Oct 2006-April 2007

Region	LANE MILES	SALT/TONS	TONS/LANE MILE	SAND/TONS	TONS/LANE MILE
Superior	4029.4	84879.6	21.1	39456.8	9.8
North	4798.6	103912.3	21.7	33219.8	6.9
Grand	3387.1	80283.9	23.7	28280.8	8.3
Bay	4393.8	63837.5	14.5	58.0	0.0
Southwest	3741.8	76159.1	20.4	3115.8	0.8
University	4350.2	66930.6	15.4	11947.3	2.7
Metro	4738.3	99767.9	21.1	0.0	0.0
TOTAL	**29439.2**	**575770.9**	**19.7**	**116078.5**	**4.1**

Combined Total (municipal, county, direct) Oct 2006-April 2007

Region	LANE MILES	SALT/TONS	TONS/LANE MILE	SAND/TONS	TONS/LANE MILE
Superior	4201.9	89831.3	21.4	39871.4	9.5
North	4942.0	110632.4	22.4	35953.5	7.3
Grand	3489.3	82124.2	23.5	14288.8	4.1
Bay	4682.1	68472.2	14.6	58.0	0.0
Southwest	4024.8	80645.2	20.0	67.9	0.0
University	4738.5	72698.3	15.3	10980.1	2.3
Metro	4990.0	104575.4	21.0	0.0	0.0
TOTAL	**31068.6**	**608979.0**	**19.8**	**101219.7**	**3.3**

Appendix F.2 Maintenance Activity Costs for MDOT Direct Forces

MDOT PCA Costs and Details FY 2007

Region	Activity		# Hours	Cost	# Units	Cost/unit
Superior	Roadside Maintenance	Catch Basin Cleanout	2,520	$165,542	4,059	$41
	General Maintenance	Approach Sweeping	140	$6,775	238	$28
		Curb Sweeping	808	$42,458	248	$171
		Total	3,468	$214,775	0	$0
North	Roadside Maintenance	Catch Basin Cleanout	1,095	$94,723	2,011	$47
	General Maintenance	Approach Sweeping	423	$18,306	1,071	$17
		Curb Sweeping	27	$8,718	6	$1,557
		Total	1,545	$121,747	0	$0
Grand	This region does not have any direct forces garages. Maintenance is done by local agencies.					
Bay	Roadside Maintenance	Catch Basin Cleanout	61	$246,441	0	$0
	General Maintenance	Approach Sweeping	371	$19,858	477	$42
		Curb Sweeping	1,143	$433,885	100 curb miles	$4,361
		Total	1,575	$700,184	0	$0
Southwest	Roadside Maintenance	Catch Basin Cleanout	551	$168,857	1,811	$93
	General Maintenance	Approach Sweeping	1,110	$54,828	1,484	$37
		Curb Sweeping	0	$94,264	0	$0
		Total	1,661	$317,949	0	$0
University	Roadside Maintenance	Catch Basin Cleanout	155	$137,144	279	$492
	General Maintenance	Approach Sweeping	1,165	$51,350	3,020	$17
		Curb Sweeping	0	$106,472	0	$0
		Total	1,320	$294,966	0	$0
Metro	Roadside Maintenance	Catch Basin Cleanout	16	$215	119,770	$0
	General Maintenance	Approach Sweeping	0	$2,031	0	$0
		Curb Sweeping	0	$17,703	0	$0
		Total	16	$19,949	0	$0
Total*	Roadside Maintenance	Catch Basin Cleanout	4,398	$812,707	8,160	$100
	General Maintenance	Approach Sweeping	3,209	$151,117	6,710	$23
		Curb Sweeping	2,004	$685,823	0	$0
		Total	9,611	$1,649,647	0	$0

* Hourly and unit totals for Catch Basin Cleanout and Approach and Curb Sweeping do not include complete data from the regions. Cost information is assumed to be correct.

Appendix F.3 Maintenance Activity Costs for Contracted Agencies

Local Agency Payment System (LAPS) Report Summary for Maintenance Activities

Region	Activity	Cost	Lane Miles	Cost per Lane Mile	Average Cost per Hour	*Approximate Total Hours* [1]
Superior	Street Sweeping and Flushing	$220,055	3,528	$62.37	$303	*726*
	Culvert/Underdrain Maintenance	$129,971	3,528	$36.84	$137	*949*
	Ditch Clean-out	$114,967	3,529	$32.58	$71	*1,619*
	Total	**$464,993**	**10,585**	**$131.79**	**$511**	***3,294***
North	Street Sweeping and Flushing	$191,702	4,223	$45.39	$134	*1,431*
	Culvert/Underdrain Maintenance	$209,655	4,224	$49.64	$91	*2,304*
	Ditch Clean-out	$29,851	4,222	$7.07	$70	*426*
	Total	**$431,208**	**12,669**	**$102.10**	**$295**	***4,161***
Grand	Street Sweeping and Flushing	$505,652	3,539	$142.90	$404	*1,252*
	Culvert/Underdrain Maintenance	$59,219	3,538	$16.74	$242	*245*
	Ditch Clean-out	$84,283	3,538	$23.82	$67	*1,258*
	Total	**$649,154**	**10,614**	**$183.46**	**$713**	***2,754***
Bay	Street Sweeping and Flushing	$334,479	3,707	$90.22	$123	*1,168*
	Culvert/Underdrain Maintenance	$135,315	3,707	$36.50	$88	*1,781*
	Ditch Clean-out	$5,450	3,707	$1.47	$58	*76*
	Total	**$475,244**	**11,122**	**$128.19**	**$269**	***3,025***
Southwest	Street Sweeping and Flushing	$166,379	1,056	$157.52	$1,541	*108*
	Culvert/Underdrain Maintenance	$170,882	1,673	$102.14	$81	*1,336*
	Ditch Clean-out	-	0	-	-	*0*
	Total	**$337,261**	**2,729**	**$259.66**	**$1,622**	***1,444***
University	Street Sweeping and Flushing	$446,386	2,907	$153.54	$433	*1,717*
	Culvert/Underdrain Maintenance	$81,650	2,908	$28.08	$44	*1,669*
	Ditch Clean-out	$62,075	2,907	$21.35	$70	*818*
	Total	**$590,111**	**8,723**	**$202.97**	**$547**	***4,204***
Metro	Street Sweeping and Flushing	$3,454,077	4,613	$748.82	$92	*37,544*
	Culvert/Underdrain Maintenance	-	0	-	-	*0*
	Ditch Clean-out	-	0	-	-	*0*
	Total	**$3,454,077**	**4,613**	**$748.82**	**$92**	***37,544***
Total	Street Sweeping and Flushing	$5,318,730	23,574	$1,243.24	$433	*43,946*
	Culvert/Underdrain Maintenance	$786,692	19,577	$269.94	$114	*8,283*
	Ditch Clean-out	$296,626	17,904	$86.29	$67	*4,198*
	Total	**$6,402,048**	**61,055**	**$1,599.47**	**$660**	***56,427***

[1]Wayne County and many cities do not report labor hours in LAPS. The number of hours listed in italics is based the average "cost per hour" obtained from local agencies which had reported the number of their hours spent on the activity.

Appendix G

Construction Site Runoff Management

2007 Construction Reviews
MDOT Storm Water Program

Region	Projects Reviewed	No. of Inspections
Bay	I-75, Birch Run	3
	M-25 in Huron County	1
Grand	M-20 in Newaygo County	1
Metro	I-96/I-75 at the Ambassador Bridge	3
	M-15 in Oakland County	1
	US-24 over Middle Rouge River	2
	M-53 at 21 and 22 Mile Roads	1
	I-69 from Taylor Road to Range Road	1
	US-12 from Heyward Street to Howe Road	1
	I-94, Masonic to M-29	1
	M-10, Greenfield to Meyers	2
	I-94 Sound Wall from Martin Road to 12 Mile	1
	M-1 from 14 Mile to Beaver Road	1
	M-10, Jefferson to Greenfield	2
	M-10, Greenfield to Lasher Road	1
North	US-131, Klaska to Mancelona	1
Southwest	I-94 in Kalamazoo	1
	I-94 at Tanner Creek	1
	I-196 near South Haven	1
	I-94/US-131 Interchange in Kalamazoo	1
	M-60 in Cass County	1
University	M-59 from I-96 to Crestwood	1
Superior	US-41/M-28 in Ishpeming	1
	US-41 at Kelley Creek	1
	M-69 in Crystal Falls	1
	US-2 at Isabella	1
	US-2 at Harris	1

Construction Advisory

CA 2007-12
June 11, 2007

From Brenda O'Brien, Engineer of Construction and Technology

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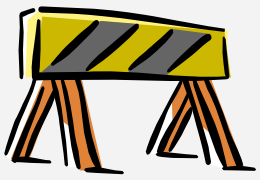
Index: Environment

Questions regarding this Construction Advisory should be directed to:

Judy Ruszkowski, Operations Environmental Stewardship Engineer, at 517-322-5698 or ruszkowskij@michigan.gov



BJO:JAR

Hydrodemolition and Concrete Diamond Grinding

This construction advisory serves to clarify the permitting requirements for discharge of process water from hydrodemolition work, and to remind construction staff of the need to ensure both hydrodemolition and diamond grinding operations are completed according to the applicable contract documents.

Hydrodemolition

MDOT received clarification from MDEQ regarding the implementation of the Groundwater Discharge General Permit for hydrodemolition process water, which was negotiated in 2005. Effective immediately, the hydrodemolition contractor is required to obtain a Certificate of Coverage (COC) under the general permit prior to beginning hydrodemolition work. The COC is an annual requirement, regardless of the number and location of hydrodemolition projects a contractor works on. MDOT provided written notification of this requirement to each of the contractors prequalified to perform hydrodemolition work.

The hydrodemolition contractor is responsible for submitting the application and paying the fee when invoiced by the MDEQ. The coverage under the general permit is effective at the time the contractor receives the COC from MDEQ. The COC will indicate the period of coverage. The project engineer should verify that the coverage will be in effect for the entire period of time that hydrodemolition work will take place on a given project. A copy of the COC should be provided by the hydrodemolition contractor and placed in the project file.

Concrete Diamond Grinding

The contractor must follow a pH control plan to ensure the pH of the grinding residue is maintained below 12.5 prior to discharge or disposal. The control plan must specify the actions the contractor will take to meet this requirement. Once the pH is verified to be below 12.5 and the contractor opts for land application of the slurry on MDOT right-of-way, the application rate must conform to the *Special Provision for Managing Diamond Grinding Slurry from Ride Quality Concrete*. This includes not only adhering to the maximum rate of application, but also the site conditions at the time of application.

Application rate must be such that

- there is no ponding, pooling or runoff.
- it does not exceed 5 dry tons per acre.

Application is not permitted

- within 100 feet of any stream or lake.

- within 5 feet of any water filled ditch.
- within 5 feet from the curb.
- in any area in which the groundwater table is less than 30 inches below the surface.
- in any location where it could enter a closed drainage system.

Project staff must be aware of changing conditions on a site that may require a change in the contractor's grinding slurry application operation. One example is a recent or anticipated rain event that may result in the slurry being carried into a surface water body, or into what is now a water filled ditch. This could result in a violation of the department's statewide storm water discharge permit. When approving the area for land application, be aware of the surrounding land features and monitor any changes in surface water flows during the slurry application operation portion of the project.

If the contractor must collect and transport the slurry for land application or disposal, or if the dewatering option is selected, be sure all required documentation is in place and the material is properly manifested.

Construction Advisory

CA 2007-13
August 14, 2007

From Brenda O'Brien, Engineer of Construction and Technology

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Index: Earthwork

Questions regarding this Construction Advisory should be directed to:

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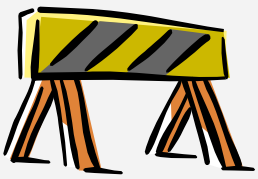

BJO:DMG

Riprap Placement for Storm Water Drainage

The purpose of this construction advisory is to emphasize construction details for riprap placement at those locations intended to carry storm water and provide protection against soil erosion and subsequent sedimentation. This construction advisory specifically addresses ditches, channels, spillways and storm water outfalls. For these applications, the primary purpose of riprap is to dissipate energy from the storm water runoff to a non-erosive velocity to minimize erosion.

To achieve effective performance of the riprap, the important elements to monitor are geotextile liner installation, stone size, type and placement, and proposed channel configuration, both in cross section and plan view. Perform this work in accordance with Sections 814 and 916 of the *2003 Standard Specifications for Construction*. Riprap may be comprised of natural stone or broken concrete that is free of soil, HMA or protruding reinforcing steel. HMA and brick are not permitted for use as riprap. One of the most common causes of riprap failure is inadequate stone size. The footprint dimensions for plain riprap should range from 8 to 16 inches, with an in-place thickness of at least 8 inches.

Prior to riprap placement, prepare the base to finish grade and place geotextile liner as detailed in Section 814 of the *2003 Standard Specifications for Construction*. Geotextile liner that meets the physical requirements specified in Table 910-1 of the standard specifications shall underlie all areas where riprap will be placed. By specification, geotextile liner is made from non-woven geotextile. Woven geotextile, like that used for silt fence, should never be used for riprap applications. All seams, if not sewn, should overlap a minimum of 2 feet. At outlets, place the geotextile liner prior to the end section and extend it a minimum of 2 feet upslope from the end of the proposed outlet end section. When heavy riprap is specified, the pay item Geotextile Liner, Heavy is required.

Channel configuration is critical for effective performance of the riprap. In accordance with Standard Plan R-46-C, the ditch, channel or spillway should have a concave configuration (not flat) with the center being a minimum of 6 inches below the outer limits of the riprap placement. The steeper the slope angle, the greater the depth of the channel should be to ensure that the runoff is contained. On long steep channels, stone check dams may be constructed to reduce velocity of the flow.

Riprap placement at outfall end sections should be in accordance with E&S-7-A of the *Soil*

Erosion and Sedimentation Control Manual. There are generally two variations for riprap placement at outfall end sections; the pipe will outlet to a defined channel or to a flat area. If the outlet is to a channel, the configuration should be as described above in accordance with R-46-C. If the outlet is to a flat area, place the riprap in a configuration that fans out beyond the limits of the flared portion of the end section. In situations where high volumes of water are anticipated, the stone may be bermed up in a semicircle pattern beyond the end section to create a stilling pool to reduce velocity of the storm water. The area limits of the riprap for this application are situation dependent and will need to be adjusted in the field on a case-by-case basis.

For additional information and details refer to the following MDOT documents:

- *2003 Standard Specifications for Construction*, Sections 813, 814, 910 and 916
- *Soil Erosion and Sedimentation Control Manual* E&S-7-A
- Standard Plan R-46-C
- *Construction Manual*, Section 813
- *Drainage Manual* Chapter 9

Please share this information with consultants and local agencies within your area.